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THE
CHEMICAL TRADE
JOURNAL:

A WEEKLY NEWSPAPER DEVOTED TO

The Commercial Aspect of the Chemical and Allied Industries.

EDITED BY

GEORGE E. DAVIS.

FORMERLY ONE OF HER MAJESTY'S INSPECTORS OF ALKALI WORKS.
CHEMICAL ENGINEER AND CONSULTING CHEMIST.

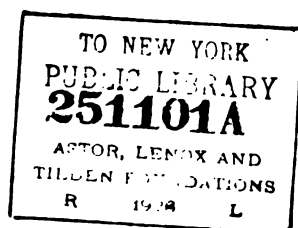
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[JULY TO DECEMBER, 1894.]

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CURRENT TOPICS.

A PENDING QUANDARY.

THE reading of the proceedings of the Mersey and Irwell Joint-Committee (an account of which appears in this issue) should prove interesting to all those who are actually, or likely to be, affected by the determined move which is being made to purify the rivers Mersey and Irwell and their tributaries.

It may here be noted in passing that the reports on bad effluents now presented to the Committee are developing into something worthy of the paper they are printed on. In contradistinction to the bald statements formerly presented, we now have the nature and duration of the test employed, and the terms in which the figures obtained are expressed, definitely set out. In addition, we have appended the climatic conditions under which the samples are taken, a most desirable contribution to the value of the report.

It will thus be seen that the discussions which recently disturbed the serenity of the proceedings of the Committee were not unnecessary or vexatious, while those who were instrumental in troubling the waters have been justified in the course they adopted. But this has nothing in particular to do with the quandary into which the Committee is steadily drifting.

In the past, when the representatives of authorities or manufacturers have come before the Committee to give an undertaking to complete efficient works within a given time, numbers, after being told that they will have to produce an effluent which will satisfy the Committee, have asked, "How are we to know what will be considered satisfactory? Will you advise us as to what you consider the best practicable means, so that we may not through ignorance unwittingly drift into error?" Such requests seem reasonable enough, but they have invariably been disposed of, by an intimation to the effect that it was not within the province of the Committee to give such advice, and any necessary information must be purchased from an outside expert. This is perhaps only what might be expected, seeing that the Committee have been told more than once by their counsellor on chemical matters that it is not advisable to fix any standard of purity, and in consequence have no standard.

Now, at the last meeting there was occasion to inform a certain local authority that their effluent was not to the liking of the Committee, and unless it improved proceedings would have to be taken. Quite right, too. In self-palliation however, the said Authority ventured to inform the Committee that they had acted on their advice and had had their effluent analysed by an outside expert, who had told them it was fit to go into a stream or river. This was a very natural act of self-defence, because doubtless the Authority was disappointed to find that after reaching a state of purity considered satisfactory by an expert, they were about to be "dropped on" by the Committee for inefficient treatment.

This mild attempt at remonstrance, however, provoked a statement which should be duly noted, for forthwith authorities were asked to bear in mind that in such matters the reports of outsiders would not be accepted; as offenders had to deal with the Committee, and to satisfy them. In other words, the question of whether an effluent is satisfactory or not is to be adjudged by those who either don't know or else refuse to state, what it is they do want and what is satisfactory. A veritable paradox indeed. We have always, with very few exceptions, spoken favourably of the work and methods of the Committee, but surely it is time that this dog-in-the-manger attitude was amended or ended.

HOW TO WASTE TIME AND MONEY.

"The earth hath bubbles as the water has, and these are of them."

Because we are able to report this week the appointment of a satisfactory Committee to inquire into the Petroleum Laws, it may be thought that the matter is as good as done with. Nothing of the sort, however. The Committee is all right, but what are the terms of reference to be? That is the *crux* of the whole matter. So far, the extent of the Committee's inquiry leaves us no better off than we were before. The laws relating to the storage and conveyance of petroleum and other inflammable liquids are to be investigated, and also the precautions to be adopted to prevent the sale of dangerous lamps. We thought the lamp bogey was nearly dead but there is a lot of twaddle to be foisted upon the long-suffering public even now, seemingly. The questions which have been asked in Parliament have been about raising the flash-point of burning oils, not the manufacture of lamps. In February last, the Home Secretary said the flash-point question "could not be dealt with apart from the whole question of amended petroleum legislation." We are now given a Committee charged to make a *limited* inquiry into certain portions of the petroleum laws in conjunction with an altogether extraneous question, without any instructions to inquire into the very point which has brought the matter into prominence. If six months since the case stood: the whole question or none at all; why should it not be so now? As things stand at present, the affair seems likely to resolve itself into an attempt to resuscitate the Inflammable Liquids Bill of 1891, under which the petroleum trade would have cause to complain of unnecessary restriction.

At the last meeting of the Petroleum Association the following opinion was expressed: "No legislation with regard to the storage of petroleum giving off inflammable vapour above 73° Abel test is at all necessary." This is an *ex parte* statement, and must be valued accordingly. In a slight measure, we agree with it, for though 73° seems a low flash-point, when only last week the temperature in the sun was 124.9°F., still, truly, during the last 30 years, under the present system of storage, serious accidents have been rather scarce. But, to quote again from the same source, we find it stated: "The question of the continuous lamp accidents which are occurring is a matter entirely different, and one that has nothing to do with the question of storage." Exactly so. It is the danger of actually burning oils of a low flash that wants inquiring into. It is a pitiful waste of energy to keep tinkering away at the lamps when the remedy lies in the oil. Messrs. Abel and Redwood have already had to propound a string of 12 precautions to be adopted, so as to use a safety lamp with safety. Is it likely poor people will either study or apply these precautions? No. Moreover, we have before us as we write a case in which a woman was burnt to death through a lamp exploding and setting fire to her clothes, the lamp having been exploded by adopting the very method of

extinguishing it so precisely specified by Messrs. Abel and Redwood. And yet this ridiculous lamp theory is continually being "trotted out," even to being made a subject for a Government inquiry.

Again, if the improvement of the so-called safety lamp would bring the matter to a finality, why do not the members of the Petroleum Association welcome lamp makers into their association, and, joining issue, speedily quash all this "delusive movement" in favour of a higher flash-point? Both trades would benefit, especially the petroleum trade, who *might* in time induce lamp makers to produce a lamp in which naphtha could be safely burnt. As a matter of fact, the members are opposed to lamp makers being invited to join the association. So strong is the expression of opinion against any such proceeding, that even Mr. Redwood (himself the secretary of the Petroleum Defence Committee), when speaking at the last meeting of the Petroleum Association, while this very point was being discussed, did not venture to positively advocate the taking of this step, which would have done more than anything else to speedily establish the truth (?) of his lamp theory which we dealt with last week. In the face of this we have a Committee appointed to make an inquiry into such portions of the petroleum law as stand in doubtful need of investigation, to the utter neglect of the point upon which the whole matter rests; and further charged, to waste time and money in trying to get at something from which to concoct some precautions affecting the sale of dangerous lamps, a procedure as wantonly futile as flogging a dead horse. Can it be wondered that after enduring so much procrastination, and contending with such conflicting excuses, we are inclined to ask who is responsible for the framing of such utterly valueless and iniquitously inadequate terms of reference as those we regret having to record in our columns this week?

SELECT COMMITTEE ON THE PETROLEUM LAWS.

THIS Committee has been duly formed. The following are the members who are to serve:—

Sir J. M. Carmichael	J. G. Swift McNeill
Sir J. Crossland	Rt. Hon. A. J. Mundella (chairman)
H. R. Graham	J. M. Paulton
Captain Hope	Colonel J. D. Palmer
F. W. Isaacson	Sir H. E. Roscoe.
W. Jacks	

The Committee is to inquire into and report upon the law relating to the keeping, selling, and conveyance of petroleum and other inflammable liquids, including the precautions to be adopted to prevent the sale of dangerous lamps for use with inflammable liquids.

THE CANE SUGAR INDUSTRY IN QUEENSLAND.—This industry is in a very flourishing condition. The yield of sugar in the colony for the past season is estimated at no less than 80,000 tons, and is valued at about £1,000,000, and the industry is said to be advancing by "leaps and bounds." While the depression of trade has given a stimulus to the frozen meat industry in New Zealand, to butter-making in Victoria, and to fruit growing and other minor enterprises in New South Wales, it appears to have induced new exertions in Queensland to extend the plantations of the sugar cane and the manufacture of sugar. The accounts of the success of sugar production in Queensland are said to be singularly encouraging. Not only is the industry affording an outlet for capital on a large scale with remunerative returns, but, "under the conditions existing, the small farmer, and even the working men, appear to have new prospects opened out to them for winning independence." One of the most curious developments is said to be the fact that the white working men, becoming rapidly small farmers, are nearly uniformly employers of coloured labour. Moreover, the progress of the industry is said to be proving also that, within certain limits, white labour is not at all precluded from sharing in the field work of cane-growing.

MORE ABOUT COAL DUST.

MR. FRANK N. WARDELL, Her Majesty's Inspector of Mines, in his report on the Yorkshire district, draws attention to the danger of dust in coal mines. He says the existence of dust in a mine is becoming every year more and more an acknowledged element of danger, and especially when gas is given off. That by the means of dust an explosion, owing its initiation perhaps to gas, can be spread over large areas and be enormously aggravated there can be no doubt whatever, and although many persons are sceptical as to the capability of dust *per se* causing an explosion, it is admitted that a very small percentage of gas is sufficient for the purpose, so small a percentage, in fact, as to be undiscoverable by the ordinary mode of testing in a safety lamp. There is no doubt that the question of dust is a very grave one, and equally with that of gas should receive the most careful attention. The abolition of gunpowder from mines, if a very drastic measure is to be adopted, seems to be the safest and most desirable. The use of high explosives might be substituted. The only way in which to combat fatalities from explosion of gas is to maintain the best ventilation, to use the best known form of safety lamp securely locked, and to ensure the directions of operations by competent officials. Co-operation, carefulness, and attention to rules on the part of the workmen themselves is absolutely necessary. Ventilation ought to be sufficiently adequate to meet extraordinary circumstances which may arise, such, for instance, as a sudden eruption of gas. All roads should be sufficiently large for the purpose of ventilation, and the several districts should be fed by means of splits with currents of fresh air. By splitting the air judiciously, the quantity of it passing through the various workings can be considerably augmented and the friction reduced. It must be always remembered, however, that unless a perfect system of discipline exists in a mine, all other precautions are likely to prove more or less abortive.

PROF. DEWAR ON PHOSPHORESCENCE.

PHOSPHORESCENCE has long been known as a phenomenon exhibited in a greater or less degree by very many bodies, of which, however, phosphorus is not one. The subject has at different times occupied the attention of many investigators, and not the least conspicuous among these has been Sir Gabriel Stokes, who some 40 years ago enunciated a theory of phosphorescence upon which little, if any, advance has since been made. His explanation was that in some way the phosphorescing body absorbs light which it gives off again in the form of rays of less refrangibility, but the mechanism of this absorption has not so far been clearly made out. Temperature was known to play an important part in the process, but it is only recently that it has been possible to make experiments at the lower extremes of temperature. The production of liquid oxygen in considerable quantities at the Royal Institution has afforded a convenient means of investigating the behaviour of substances exposed to light at a temperature of 180° below zero, and at a meeting of the Chemical Society, held on Thursday, at the Royal Institution, Professor Dewar gave an account of the researches which he has lately been carrying out in this direction. Finding that at low temperatures chemical action is almost, if not quite, in abeyance, Professor Dewar was led to try whether photographic action also ceases. He found that it does not, though it is diminished by 80 per cent. or more. While investigating this he noticed that the apparatus with which he was working was phosphorescing brightly, and he was thus induced to study phosphorescence itself at low temperatures. Beginning with gelatine and celluloid—substances which he was using in his photographic experiments—he found them to be very luminous when cooled to—180° and exposed for a second to the beam of a strong electric light. In the same way phosphorescence was produced in numerous other organic substances, such as ivory, bone, india-rubber, egg-shell, feathers, cottonwool, linen, leather, blossoms of flowers, &c. Naturally, the question presented itself of the relation of phosphorescence to structure. Professor Dewar therefore experimented with various definite organic compounds. A hydro-carbon like paraffin was feebly phosphorescent at ordinary temperatures; at low ones brilliantly so. Many of the complex compounds known as ketones were exceedingly luminous—acetophenone, for instance; but here, again, the difficult nature of the research was illustrated, for out of three or four isomeric substances one would be very luminous and the others scarcely so at all. One of the most beautiful phosphorescing bodies was the complex salt, the platino-cyanide of ammonium, which shone with a splendid green light. White of egg was brighter than the yolk, while albumen frozen on the outside of a tube and exposed to light coming through a quartz lens, so that there was no glass to obstruct the ultra-violet rays, phosphoresced with a bright and blue light. From these and other experiments Professor Dewar is led to the provisional generalisation that the more complex a body is in structure, the more likely it is to phosphoresce, perhaps, because, in some way, its structure enables it to take up the

light-vibrations with the more facility. A very curious point is the enormous effect of the presence of an almost infinitesimal quantity of organic matter. Pure water is weakly phosphorescent, but if it is very slightly impure it becomes strongly so. A perfectly clean plate of metal does not phosphoresce, but the merest trace of grease—such as is left by a touch of the hand—will make it brightly luminous. The differences which may be caused in the physical behaviour of substances by the addition of other substances in infinitesimal quantities is attracting a good deal of attention at the present time. The capability of oxygen for phosphorescing is another curious fact. In the gaseous state it can be made to glow if exposed to an electric spark while rushing into a large vacuum tube. This property is shared by its compounds, but is not possessed by hydrogen or any other gas. Here, strange to say, the presence of a trace of organic matter destroys the effect. Professor Dewar stated that a drop or two of ether or of scent in the room would make the experiment impossible for hours. That the phosphorescence is due to some kind of molecular change in the oxygen is indicated by the fact that ozone, among other products, is formed during the process.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending June 16th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted Hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'30	8'79	0'42	Nil.
South Metropolitan Gas Co.	6	16'66	11'00	0'5	Nil.
Commercial Gas Co. ..	2	16'30	7'15	0'6	Nil.

The supply for week ending June 23rd was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'38	9'10	0'40	Nil.
South Metropolitan Gas Co.	6	16'71	10'66	0'58	Nil.
Commercial Gas Co. ..	2	16'60	7'45	0'5	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cb. ft. of gas on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

CLOWES' INFLAMMABLE GAS DETECTOR.—This highly ingenious and most useful apparatus which was described in full in our special issue, and which is made by Messrs. Fraser and Co., London, E., is about to be employed in accordance with the special request of the Royal Commission on Mines for making a careful inspection for gas in the Albion Colliery. The detector, it will be remembered, is a miner's lamp in which a hydrogen flame burns, by means of which very minute quantities of fire-damp can be detected and also measured.

THE NEW BRITISH IRON COMPANY.—The extensive iron and steel works, collieries, and other properties belonging to the New British Iron Company (Limited), near Dudley, which concern is in liquidation, have been offered for sale by auction at Wolverhampton. In addition to the works there are 530 acres, containing two-and-a-half million tons of coal. The concern, which originally cost half-a-million, has had expended upon it a much larger sum. Only one bid of £25,000 was offered for it as a going concern. The ironworks, blast furnaces, and collieries were offered separately, and £20,000, was refused. A few portions of land and freehold properties only were disposed of. It was announced that as the works did not find a purchaser they will be stopped. Over 2,000 men are employed in them.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held, on Monday last, at the offices, Mosley-street, Manchester. Ald. J. Thompson presided, and Sir H. Roscoe and his assistant were in attendance. The Chief Inspector, (Mr. R. A. Tatton) reported on the position of the various local authorities whose extensions of time had expired. The position of manufacturers seems satisfactory, 262 keeping the bulk of their solids out of the rivers. The majority of the purification works, however, are not really efficient, a fact which applies to almost all authorities and manufacturers; 101 manufacturers are constructing tanks, etc.

REPORT OF THE CONSULTING SUB-COMMITTEE.

According to the recommendations of the Committee, as adopted finally by the Joint Committee, in three cases an extension for one month was granted. In three others two months, and in one three months. It was decided to proceed against Tyldesley Local Board. In the case of the Manchester Corporation's works at Davyhulme:—

Mr. Killick said they had had before them a member of the Manchester Corporation, and he explained what was being done, and, he believed, that the effluent would be turned on to the land in a month. Under the circumstances the Committee did not bring forward any resolution. They thought there had been a definite improvement.

The Clerk (Mr. F. C. Hulton) read correspondence from the Town Clerk of Manchester, which stated that the unsatisfactory condition of the effluent from the Davyhulme sewage works was caused by the breakdown of the pumps, which caused a temporary accumulation of sludge in the tanks. The inconvenience was a purely temporary one, and the Rivers Committee trusted that the condition of the effluent in the future would be such as to give no cause for complaint.

The Chairman, in answer to Dr. Hewitt, said the Rivers Committee intended having two sets of pumps. The matter was in the hands of the consulting engineers, and he could not, therefore, go into details.

Mr. Ald. Hopkinson said that everything that was essential to the success of the works, was in duplicate.

The Clerk read another letter from the Town Clerk, stating that it was hoped in a month's time to pass the effluent through the land. The first 30 acres of land would then be ready for the purpose of filtration beds, and a second 30 acres would be at once prepared and pressed forward to completion.

In answer to Mr. Noton (Oldham),

The Chairman said Manchester had now got a little over 100 acres of land, and had powers to deal with more land lower down the stream, but it had not yet been purchased.

Mr. Groves pointed out that the Manchester effluent did not improve.

Mr. Alderman Walmsley said Manchester was doing the best it could. They were dealing with the difficulties of decades of years, and it would be unreasonable, inasmuch as Manchester had shown a desire to cope with the matter, not to meet them. At the same time he endorsed the observation of Mr. Groves that the effluent was not more satisfactory than in other cases in the watershed.

In the course of further discussion,

Sir H. E. Roscoe, M.P., said he thought, as far as he could judge, the Manchester Corporation were doing everything they possibly could, but no very great improvement could be looked for in the effluent until they were in a position to pass the sewage on to the land. All the Committee could do, therefore, was to wait and see what sort of effluent would result when land filtration was employed.

It was resolved that the matter should stand over till the meeting of the Committee next month.

In considering the case of Salford, Mr. Killick explained that representations had been made by Salford to the effect that a scheme would be submitted to the Local Government Board for approval within two months from Friday, last week. They accordingly asked that the summons might be adjourned for two months. Being assured that the utmost expedition would be used to carry out the scheme when approved by the Local Government Board, the Clerk had, subject to the approval of the Committee, agreed to adjourn the case to the 31st August. He advised that that course should be adopted, as it might be the means of avoiding a long legal inquiry and a heavy expenditure in scientific and other witnesses. After carefully considering the same, the Sub-Committee were of opinion that they would not be justified in agreeing to an adjournment for the period recommended by the Clerk, and they had therefore instructed him only to consent to an adjournment for fourteen days, and that the case be then entered for hearing on some date suitable for both parties. Mr. Killick moved the adoption of the recommendation of the Sub-Committee.

The motion having been seconded,

Mr. Alderman Walmsley said Salford had not had time since the interview to send up complete plans, and, moreover, they could not pretend to say that they would be ready to do anything in a fortnight. When the plans went up the Local Government Board would take time

to consider them. He left the matter in the hands of the Joint Committee, and if they chose to go on with the prosecution, well and good; he had given them the circumstances as they stood, and asked what, as reasonable men, they would have them to do.

Mr. Alderman Hopkinson said he had always understood that in a committee of that kind they acted on the advice of their legal or scientific adviser. They had a distinct recommendation from their clerk that the case should be adjourned till August 31st. They had no evidence that it would be possible to get a clearer effluent at an earlier date, and he could not conceive that to proceed in a fortnight would be other than a scandalous waste of public money. He moved as an amendment that the Committee adopt the view of the Clerk, and that the matter be adjourned till August 31st.

Mr. Scowcroft seconded the amendment.

Mr. Alderman Walmsley, in answer to questions, said the scheme of the Salford Corporation was one which combined precipitation with filtration. Three years' hard work had been necessary in order to arrive at a conclusion.

Dr. Hewitt asked what assurance Salford could give that their scheme would be effective. He did not know why Salford should object to be put under an order of the court if they were perfectly certain, that they could produce a satisfactory effluent. People outside were continually laughing at the action of the Joint Committee, and saying that the Irk, the Irwell, and the Medlock, were nearly as black and stinking as ever. If Salford were given till August 31st that should be the last word upon the subject.

Mr. Ald. Walmsley said he hardly knew what kind of assurance was expected from him. He always understood the Committee refused to see plans or pass an opinion on any scheme. For three years Salford had done its best to arrive at a satisfactory solution of the difficulty. No money had been spared in the effort. Salford asked for no more consideration than would be given to any other authority or persons willing to do their best.

After some further discussion a vote was taken, when the amendment was carried by seven votes to six.

Bolton was granted one month to complete the purchase of land.

In the case of Prestwich, the Clerk was instructed to write and inform them that if the effluent did not improve in the future the Joint Committee would take proceedings, and also that it was necessary the authority should put down efficient filters to pass the sewage through before discharging it into the stream.

Dr. Hewitt, in seconding the motion, said in the case of Prestwich he had before him a report of the Prestwich Local Board, which stated that Mr. Carter Bell had examined the effluent, and that he considered it to be a very fair effluent, and fit to be turned into any stream. He (Dr. Hewitt) hoped the Prestwich Local Board, or any other local authority, would remember that they had to satisfy the Joint Committee, and not an individual analyst, as to the harmlessness of their effluent.

THE SLUDGING NUISANCE.

Mr. V. K. Armitage drew attention to the case of Littleborough, where the sub-inspectors found the sewage being turned into the stream on the night of the 9th June, and said it was an absolute waste of time to make people erect tanks unless they could ensure their being used as intended.

Mr. Groves said it should be recommended to the sub-committee that the time had arrived when it was necessary to increase the number of inspectors. He knew cases where manufacturers let off their sewage tanks into the river at night.

Mr. V. K. Armitage drew attention to a conviction obtained for what is known as mill lodge sludging, where fines of 10s. and costs were imposed. So long as such small fines were inflicted they would have sludging, as it was cheaper to break the law than to comply with it.

Mr. Alderman Walmsley said that in accordance with the proposal that authorities should remove sludge at a nominal cost, the Salford Corporation sent out notices to millowners that they would be willing to remove the sludge, and they received satisfactory answers from two only.

It was decided to proceed against Littleborough.

The Chemical Sub-Committee recommended that extensions for one month should be granted in two cases, and three months in one other. Application is to be made to the Local Government Board for permission to prosecute in two cases. The Board have also given their consent to prosecutions in the case of Messrs. W. E. Buckley, N. Ramsden and Co. (two mills), T. and G. Roston, and Wilkinson Bros. The Committee then rose.

FIRE AT A BLACKING WORKS.—Shortly after noon on Monday a fire broke out on the premises owned by Mr. Wm. Berry, blacking manufacturer, Rochdale-road, Manchester, and by two o'clock the entire building, which was five storeys high, was destroyed. The damage is estimated at several thousand pounds.

THE "FLASH-POINT" OF BURNING OILS.

THE following is the text of a memorandum sent by T. Graham Young, Esq., to every member of Parliament, giving some reasons why the present "flash-point" ought to be re-investigated. Under such circumstances it is hard to understand how the terms of reference actually given to the Select Committee came to be framed so as to ignore the "flash-point" query altogether:—

The "flash-point" of an oil is the lowest temperature at which it gives off sufficient vapour to cause an explosion when mixed with air on applying a light.

Civilised countries usually adopt a legal or standard "flash-point" so as to secure the public from having supplied to them a dangerous oil, and also to guard against the destruction of property. At present this is of increasing importance, as oil is being more generally used, and owing to the low price there is more danger of the supply being of poor quality. In 1874 there were imported into London 247,024 barrels, average price 10½d. per gallon. In 1893 the quantity had increased to 1,515,607 barrels, average price 3¼d. per gallon.

The Abel apparatus used in this and several other counties for testing at what temperature an oil flashes, consists essentially of a small cup in which the oil is placed. The cup is closed by a lid in which there are two small holes provided with movable covers or slides. A thermometer passes through the cover.

When an oil is to be tested a quantity of the same is placed in the cup, and as the temperature is gradually raised, a jet of flame is occasionally applied to one of the small holes in the lid, and when the mixture of oil vapour and air flashes, or, in other words, explodes, this is technically termed the "flash point" of an oil. It is, however, important to remember that if a larger cup is used, say 9 inches in diameter, instead of the smaller size used in the Abel apparatus, an oil will be found to flash as much, in some cases, as 10°F lower, so this test (Abel) serves as a comparison between different oils, but does not indicate as to whether or not it is dangerous to use or store under all conditions.

When the flash-point is reached in the Abel apparatus, as stated above, there is an explosion, and this is exactly what happens when a lamp explodes: the flash point has been reached or exceeded, and a light, usually the flame of the wick, causes the explosion or flash. It can be rendered still clearer. If a cask partly, say one-half, full of burning oil, having a flash of say 75°F., was heated by the sun or even allowed to stand in the shade on a hot summer day, until this temperature (75°F.) was reached, and a light then applied, an explosion, resulting in the total destruction of the cask and the scattering about of the burning oil, would result, because the flash had been reached or exceeded.

The standard adopted in this country is 73°F., and has been in force since 1879; and although the Government consulted, at that time, some of the leading chemists, it was thought by many well able to judge that 100°F. would have been a safer point, and experience and statistics prove the correctness of the supposition. It is essential that our standard, in order to secure safety to users of oil, should be fixed outside the range of any temperature which occurs under ordinary conditions where it is used for burning or where it is stored; else it is not a standard of safety.

The following figures show that at certain times of the year oil with a flash of 73°F. must be classed with naphtha. During 1893, April to September, there were in London 60 days on which a shade temperature of 73°F. and upwards was registered, including

20 days when the temperature was 80-90°F.
3 " " 90-100°F.

In Manchester there were during the same period 32 days on which 73°F. and upwards were registered, including

10 days when the temperature was 80-90°F.

In Glasgow there were during the same period 10 days when 73°F. and upwards were registered, including

1 day when the temperature was 80-90°F.

If you add to these temperatures the heat of a kitchen, workshop, or crowded room, the absurdity of 73°F. flash becomes more striking, it would be almost equally safe to have adopted 63°F., because oil from the above figures is often 20-30°F. above its "flash-point."

The average death-rate for lamp explosions for England and Wales is, according to Register-General's returns, placed at 100 annually. There were recorded in *Fire and Water*, and these records are not complete, 16 deaths due solely to lamp explosions during the months of March, April, and May, 1894. This is equal to 64 deaths per annum, besides a large number of injured persons, and although this number may appear small to some, if a similar number of lives were sacrificed in a single explosion from another cause some inquiry would be instituted.

According to the London Firemaster's report, there took place in 1893, 111 fires in London directly due to lamp explosions, causing a considerable destruction of property [those due to upsetting or exploding

increased from 378 to 478 in London only.—ED. C.T.J.]; and it is very important to note that neither these fires nor yet the deaths above mentioned could have occurred if the oil had had a flash of 100°F. It is only in districts where high flash oil is used that exemption from such accidents can be claimed. In Scotland, for instance, before petroleum began to be used such a thing as a lamp explosion was never heard of.

The fact that such a large proportion of lamp explosions and fires occur in London seems to prove that the low flash oil must be held responsible, together with the higher temperatures occurring there.

It has been argued that oil of a lower flash than the surrounding air is safer, because the naphtha generated drives the air out of the lamp receiver. This to an unprejudiced mind must seem not only absurd but unscientific, as, if true, why not use naphtha and abolish our legal standard?

That the deaths and fires are alarmingly on the increase proves the reverse of this line of argument.

Trade in foreign petroleum, if made safe, should be fostered and not hampered; but any law which legalises an oil for general use which flashes under or even at ordinary temperatures existing in dwellings, &c., at any period of the year, should in the interests of the community be abolished.

In Abel and Redwood's report on lamp accidents, published by Eyre and Spottiswoode in 1890, they give details of 28 accidents, 23 of which were due to the lamp exploding—the oil having a flash varying 73° to 88°F., which proves that 88°F. is too low a point to secure safety.

In the same report they advocate the use of metal receivers for the oil instead of glass or porcelain, to avoid fracture in case of explosion or oversetting. This is a very unwise suggestion as regards bolstering up an unsafe oil; rather make the oil safe, and the metal receiver would ensure further safety in case of oversetting. It is not only from explosion in lamps, but in storage vessels, that we have to consider the danger; and, as we have before seen, oil which in the Abel apparatus would flash at 73°F., might in a tank flash at 63°F.

Abel and Redwood state in their report that high-flash oil when burning produces more heat in the lamp than low-flash oil, and so increases the danger; but according to their own argument it should render it safer, as the increased amount of vapour should expel the air out of the lamp. But leaving this aside, it has been proved by subsequent experiments that high-flash oil does not produce more heat in the lamp—*i.e.*, if the oil has been properly refined.

Most people, no doubt, would imagine that if low-flash oil were suitable for Great Britain it would be equally so for the United States, where it is produced; but, on looking over the different standards adopted, the reverse is found to be the case, 100°F. (Abel test) and higher being the rule. Of course the Abel test is not the one employed, but it is easy to compare the standards. Some of the States have recently moved to have the flash-point raised.

The standard flash in Canada is 95°F., and although attempts have been made to lower it by interested parties, the Canadian Government has stood firm and refused to alter it.

The standard adopted by the German Government is 69.8°F., and is often used as an argument in favour of a low flash point; but it would be unwise, as it would be unsafe to follow the example of any country when statistics were available to prove that it should be raised.

The results of Professor Weber, who was appointed to investigate this matter, are published in *Dingler's Journal*, 241, Nos. 4 and 5. He states that oil with a flash point of 68°F. is liable to explode, and to ensure greater safety it had been fixed at 69.8°F. It is very extraordinary if an increase of 1.8°F. will ensure the safety of an oil, especially when the fluctuations of the temperature where oil is used and stored are so great, and when the size of the vessel in which the oil is contained has such an effect on the flash point.

Our own Government will not allow oil into their stores with a flash of less than 105°F., which shows that, although they are fully alive to their own interests, they do not pay sufficient attention to the interests of the general public.

It must be apparent that to carry oil in bulk, in tank steamers, having a flash of 73°F. (Abel), or even 83°F., and which may mean 63°F. and 73°F. in tanks at all seasons, even in our own climate, is dangerous, and to have such vessels docked alongside others and close to our warehouses is unwise. One has only to read over the regulations in force on the vessels engaged in this traffic, and which have been framed from experience gained at the expense of many lives and destruction of shipping, to realise the danger which attaches to its carriage, and those who have been mainly instrumental in drawing up these regulations cannot see that accidents of the same nature, but on a smaller scale, are happening every day in our lamps, even although the matter is repeatedly laid before them.

This side of the question is one which is at present engaging the attention of insurance companies and dock authorities.

The following case shows the dangerous nature of this traffic :—

On May 19th the oil tank steamship *Kasbek*, laden with petroleum in bulk, arrived at Dartmouth from Batoum for London. The captain reported that a leak was discovered whilst on the voyage in one of the tanks, but owing to the tanks being full of gas it was unsafe to use lamps to execute repairs, but this oil was to be used in lamps in this country.

Of course the accidents which have happened to steamers carrying crude petroleum are very numerous, but the serious explosion which occurred on the *Petria* in 1886, which had discharged a cargo of refined petroleum at Liverpool, was due, many thought, to the vapour of the petroleum, and not to the spray of petroleum at a rivet hole as suggested at the inquest. If such a heavy spray had existed it would have fired before the light was placed near the rivet hole. It is more probable that the spray had wet the sides and bottom of the tank, and the vapour was lying in a layer on the bottom, and when the spray was ignited the vapour immediately exploded.

A new method of storing oil has lately been adopted in England. It is brought from the seaport in tank waggons to different centres, where it is pumped into iron cisterns erected in the railway companies' goods yards. If during hot weather the oil in these tanks, which are usually exposed to the sun, became heated above its flash point, and this could very easily take place, a live coal from an engine or a spark from a pipe would cause an explosion, and the burning oil would be scattered in all directions.

There can be no denying that the question as to whether or not the "flash point" should be raised is absorbing much attention throughout the country, and that by men who are not interested parties, but who wish to judge correctly on both sides of the question.

An investigation has been proposed by the Home Secretary, and, if a Committee is formed, it is to be hoped that no interested persons are asked to be members, or the truth of the matter will not be reached, and dissatisfaction the only result. A very powerful opposition will no doubt be offered to any change; but this must be expected, as it would no doubt mean a slight extra expense to produce a high-class oil of higher flash; but, this opposition which proved so successful in 1879, should be met with facts which warrant a change.

At a meeting of the Scottish section of the Society of Chemical Industry, held 7th February, 1893, the following report was submitted and unanimously approved of.

1. The present legal flash (*i.e.* 73° F.) for mineral burning oil is too low, and, therefore, under ordinary circumstances, dangerous.
3. 100° F. (Abel test) should be the minimum legal standard.
4. All burning oil imported into this country should have the Abel test plainly branded on the cask.
6. Many fatal accidents have occurred from the use of this inflammable oil, and, as a measure of precaution, so-called safety lamps, constructed of metal, have been recommended. Unless the oil itself is safe, a new source of danger is introduced by safety lamps.

The Manchester Section of the Society of Chemical Industry passed the following resolution on 1st December, 1890 :—

"That in the opinion of this meeting the legal 'flash-point' of burning oil sold in this country is considerably too low, and it should be increased to a standard of not less than 100° F. Abel standard."

Extract of Report by Committee appointed by the Manchester Chamber of Commerce to investigate the matter, and which was passed as a resolution by the Board :—

"It is the opinion of your Committee, an opinion confirmed by experience, that the standard, *i.e.* 73° F., is too low, and that the minimum ought to be 100° F. The dangers of low flash oil are present not only when being burnt in lamps but when it is stored."

Similar resolutions have been passed by the leading Chambers of Commerce of Great Britain.

THE CYANIDE MONOPOLY.—The Under-Secretary for State for the Colonies was waited upon recently by representatives of mining interests in the Transvaal, who directed his attention to Mr. Conybeare's question on the subject. The right hon. gentleman stated that he would make inquiries, and that if the facts were as stated in the question, representations would be made to the Transvaal Government.—Mr. Bartley, M.P., also gave notice of his intention to ask the following question on Monday last :—"Whether the Under-Secretary of State for the Colonies is aware that various patents for processes for the extraction of precious metals from their ores, in which processes cyanide of potassium plays an important part, have been granted to British subjects by the Transvaal Government; that a monopoly is proposed to be granted by the Transvaal Government for the importation of cyanide of potassium, which will practically prevent the legitimate uses of such processes, whereby great loss will be incurred by the patentees; and whether he will make a representation to the Transvaal Government to obtain protection for such patentees."

THE DAVY-FARADAY RESEARCH LABORATORY.

AT the monthly meeting of the Royal Institution, held on Monday last, the offer by Mr. Ludwig Mond of one of the most munificent endowments of scientific research that has ever sprung, in this country at all events, from the liberality of a private citizen, was accepted.

Mr. Mond last year bought the large freehold house, No. 20, Albemarle-street, contiguous to the buildings of the Royal Institution, and formerly the residence of the Earl of Albemarle. This house, says the *Times*, he has resolved to convey in fee simple to the Royal Institution. He further proposes to defray the whole expense of converting it from its present uses into a laboratory of chemical and physical research, to be called the Davy-Faraday Research Laboratory, and of equipping it with everything needful for the conducting of scientific research upon a large scale. In addition to this he proposes to endow the new laboratory first with an income sufficient to defray all the expenses of rates, taxes, and maintenance; and, secondly, with a further and of course much larger income, sufficient to pay the salaries and incidental expenses of a trained scientific staff, and generally to carry on the work of an institution of this kind in an adequate and business-like manner.

By this generous offer, the financial magnitude of which will be appreciated by all who are conversant with the necessities of a scientific establishment on so large a scale, Mr. Mond realises an idea which engaged the attention of Faraday and Brande and the managers of the Royal Institution half a century ago.

Mr. Mond has felt that the need for such a laboratory has become greater and greater since the work of the scientific investigator has become more and more subtle and exact, and in consequence requires instruments of precision and a variety of facilities which a private laboratory can very rarely command. It has been his desire for many years to found a public laboratory which shall give to the devotees of pure science, anxious and willing to follow in the footsteps of the illustrious men who have built up the proud edifice of modern science, the facilities necessary for research in chemistry, and more particularly in that branch of the science called physical chemistry. He has come to the same conclusion as the promoters of the scheme of 1843—*viz.*, that such a laboratory would still have the greatest prospect of success under the aegis of the Royal Institution; that, in fact, it would be the consummation of the work which this great institution has been fostering in its own laboratory with such remarkable results by the aid of the eminent men whose services it has always been fortunate enough to procure.

He accordingly places the Davy-Faraday Laboratory under the management of a committee, nominated by the managers of the Royal Institution from among themselves, and reporting to them. While the laboratory will have a competent chief of its own, devoting all his time to its work, Mr. Mond desires that the resident professor at the Royal Institution, should accept the position of director, thus further strengthening the ties between the Royal Institution and the laboratory as well as insuring for the latter all the aid it is in the power of the Royal Institution to afford.

The laboratory is to be free to all persons, without distinction of sex or nationality who, in the opinion of the managers of the Royal Institution, are fully qualified to undertake scientific investigation, preference being naturally given to those who have actually done original work.

After providing for all the needs of the Davy-Faraday Research Laboratory, the house given by Mr. Mond to the Royal Institution will afford space sufficient to provide a considerable addition to the accommodation of the Royal Institution itself. Such an extension of its premises is particularly needed to make room for its growing library and also for the chemical laboratory, where the powerful apparatus required for such investigations as those so brilliantly carried on by Professor Dewar demand space undreamed of by the chemists of an earlier generation.

Having thus at once added greatly to the resources of the Royal Institution itself and made provision for a laboratory of research free to all competent investigators from outside, Mr. Mond hopes that others may come forward to take the further step of founding scholarships and bursaries for the benefit of promising students who may not possess the means to avail themselves of the great opportunities now offered. If liberality as modest as it is magnificent—for it will be noted that Mr. Mond does not even attach his name to this splendid foundation—can avail to stimulate the generosity of those to whom science has been a bountiful foster-mother, the laboratory now founded will become the most appropriate of conceivable memorials to the great chemists from whom it takes its name; while the Royal Institution, where they laid the foundations of knowledge to which this country owes an incalculable addition to its prosperity, will enter upon the second century of its existence with the brightest prospects of redoubled vitality and usefulness.

Correspondence.

* We do not hold ourselves responsible for the opinions expressed by our correspondents.

ANNUAL MEETING OF THE SOCIETY OF CHEMICAL INDUSTRY.

(To the Editor of the Chemical Trade Journal.)

SIR,—The Local Executive Committee of the Scottish Section of the Society of Chemical Industry must be truly grateful to your correspondent "Fairplay," for so insidiously and dexterously endeavouring to make the Edinburgh meeting a success. The official statistics regarding "the ancient scourge," are happily so sufficiently reassuring that doubt arises regarding the exact purpose "Fairplay" had in view when he wrote his letter. Is this another example of inter city jealousy, or is it merely a kind and thoughtful attempt at "log-rolling," a meeting which has every appearance of being a great success even should "Fairplay" absent himself?—Yours etc.,

ONE IN THE KNOW.

Glasgow, July 4th, 1894.

(To the Editor of the Chemical Trade Journal.)

SIR,—A copy of the letter addressed to you from Glasgow and signed "Fairplay" has been forwarded to me, and, although much astonished at its contents, I have thought it better to obtain official information as to the so-called smallpox "epidemic" which your correspondent assures you is at present raging in Edinburgh and neighbourhood. I have just seen the Lord Provost, who informs me that at present there are only three cases, and that no further cases exist in the city. The families in which these cases occurred are all in the quarantine house. The very excellent system of notification which, thanks to the energy of our civic rulers, exists in this city, renders it impossible that any infectious case can occur without their knowledge. As to the county, where notification also exists, only one case has come to my knowledge. The epidemic in Leith has practically ceased since the authorities made notification compulsory, and removed all cases to the hospital. Our members need not fear to come North, and they may be assured that the reception they will receive, not only at the hands of the local section but also at the hands of the civic authorities of Edinburgh, Perth, and St. Andrews, will be such as to compare most favourably with former meetings.—Yours, etc.,

W. IVISON MACADAM,

Hon. Treas. Local Committee.

Surgeons' Hall, Edinburgh, 4th July, 1894.

P.S.—Since writing I have official information from Leith that there has been but one case of smallpox since June 27th. Epidemic therefore ceased.

THE FLASH POINT OF BURNING OILS.

(To the Editor of the Chemical Trade Journal.)

SIR,—I read your able article on the "Proposed Flash Point Inquiry" with much pleasure, and thought your illustration to show that it would be no more absurd to say that the danger from gun accidents lay not in the explosive charge but in the construction of the gun, than to say an explosive oil could be rendered safe by altering the construction of the lamp, very much to the point. It would be no more absurd for the Government to allow the indiscriminate manufacture of explosives and propose that the people should provide themselves with suits of armour in case they came across any flying bricks, &c.; or, again, to allow open sewers in the streets, and make people wear specially-constructed respirators to destroy the poisonous gases.—Yours, &c.,

ANTI-HUMBUG.

ANSWERS TO CORRESPONDENTS.

W. J. F.—Thanks for item.

T. G. Y.—We shall welcome any information likely to bring matters on.

A. J. F.—We are glad it was not our mistake.

V. AND S.—We make many corrections, but could hardly venture to make such a sweeping one as was necessary in this instance. We are glad you have traced the blame to the right quarter. We made similar inquiries subsequently, with the same result, being confident the error was not ours.

E. M. G.—Please accept our acknowledgments.

E. W.—We have done so with pleasure.

E. B. R.—We can let you have a few others if you want them.

Trade Notes.

CHEMICAL DIVIDENDS.—The Sharon Chemical Company, Limited, announce an *interim* dividend at the rate of 5 per cent. per annum. The India-rubber Gutta Percha and Telegraph Works also announce an *interim* dividend of 5 per cent. The directors of the Patent Victoria Stone Company have decided to pay an *interim* dividend at the rate of 10 per cent. per annum for the half-year ended June 30, payable at the London and County Banking Company, Limited, Lombard-street, on and after the 3rd inst.

THE SALFORD PROSECUTION.—The hearing of this case, which we notified last week as being postponed, was definitely fixed at the last meeting of the Mersey and Irwell Joint Committee for August 31st. The Corporation are presenting a scheme to the Local Government Board, which combines precipitation with artificial filtration. This is a departure from the traditions of the Local Government Board, who have a blind belief in land filtration. The scheme, however, seems to have awakened more than passing interest amongst the officials of this department, a fact which will convey a great deal to those who are acquainted with the lethargy of the Board.

ARTIFICIAL SILKS.—A variety of fabrics and silk spun in Bradford, Yorkshire, from Dr. Lehner's artificial silk have been on exhibition at the rooms of the Manchester Chamber of Commerce. The silk is said to rival in appearance the best China and Italian silk. Wood pulp, jute, or cotton waste are dissolved and spun by a mechanical silk worm to a thread of even diameter throughout. No special treatment is necessary in dyeing, weaving, or finishing, and the colours are as brilliant and delicate as those of natural silk. The new material is cheap, and is capable of being used for an infinite variety of goods. The exhibition was visited by a large number of gentlemen interested in the silk industry.

BOILER EXPLOSIONS IN 1893.—In issuing their report for 1893, the National Boiler Insurance Co., Ltd., state that during 1893, 27 actual explosions of steam boilers in the United Kingdom were reported, which caused the deaths of 9 persons and injury to 22 others. The ordinary vertical boiler as usual heads the list. The following table gives a few particulars as to the kind of boilers with which accidents occurred:—

	Internally fired.	Externally fired.
Vertical (with internal fire-box).....	11	—
" Lancashire "	2	—
" Cornish "	2	—
Locomotive	2	—
Portable (Locomotive type)	1	—
Cylindrical, dish-ended	—	2
Cylindrical, egg-ended.....	—	2
Cylindrical, one-flued.....	—	1
Water Tube	—	1
Combined Flue and Tubular Boiler ...	1	—
Irregular Shaped Cross Section, two internal tubes	1	—
Cylindrical Return Flue	1	—
Totals.....	21	6

RIVER POLLUTION INQUIRY.—An inquiry was held at the Salford Town Hall last week before Colonel Hasted, Inspector of the Local Government Board, into an application by the Mersey and Irwell Joint Committee for sanction to take proceedings against the Winterbottom Book Cloth Company, Limited, of the Broughton Dyeworks. The case for the Committee was that complaints had been made as to the condition of the effluent from the works, and an extension of time was granted to allow of measures being taken for the treatment of the effluent. At the expiration of the time it was found that nothing was being done, and application was then made to the Local Government Board for permission to take proceedings against the company. Mr. Byrne, on behalf of the company, said although the time within which the works were to have been carried out was technically past, it would not be equitable or just to submit the company to a prosecution. Before they heard from the Joint Committee at all the company had made several attempts, and considered several schemes for the improvement of the effluent from their works, and after the communications were received from the Joint Committee still more energetic steps were taken. On May 4th last, a contract for the carrying out of the works at a cost of about £500. was entered into with the International Water Sewage Purification Company, Limited, and on May 5th the Joint Committee were informed of the fact, yet on May 7th they included the company in a list of black sheep against whom proceedings were to be taken. The inspector afterwards visited the works to see what is proposed to be done to purify the effluent.

Market Reports.

TAR AND AMMONIA PRODUCTS.

It has now become almost impossible to be surprised at any change which benzol may exhibit, only it is cheaper, that's all. 90's is now quoted 11½d. and 50/90's 1s. 2½d. Carbolic acid is steady, and in fairly good demand: prices for crude and crystals, however, remain unaltered. Crude naphtha ranges in value from 5½d. to 6d., and solvent is much firmer at 1s. 4½d. Pitch rules strong at 31s. to 32s., f.o.b. East Coast.

Sulphate of ammonia is dearer, but there is no notable improvement in business. The scarcity of sulphate, however, is aggravated by the Scotch coal strike, and any improvement in the demand would soon tell on the market. Beekton value is still £14, which figure may be taken as representing spot price at all ports.

REPORT ON MANURE MATERIAL.

During the week a moderate amount of business has been done without material alteration in values. Mineral phosphates are rather more firmly held, freights being somewhat higher. For good Continental ports the value of 75/80% Florida rock is about 8½d. per unit, c.f. & i., and for good United Kingdom ports 8d. per unit is again the quotation. For hot-air-dried South Carolina River rock 6½d. per unit would probably still be business, but something more would now have to be paid for Peace River rock. Continental descriptions are unchanged. There continues to be good inquiry for handy cargoes of River Plate bones, and there would be buyers at £4. 13s. 9d.—probably at £4. 15s. per ton, to United Kingdom—but at present there are none offering. For large cargoes the price is about £4. 12s. 6d. per ton. Crushed Kurrahee bones, November-December steamer shipment, may be had in moderate quantity at £4. 13s. 9d. per ton, ex quay Liverpool or Hull—none offering for earlier shipment. Sellers of Bombay bone meal ask £4. 17s. 6d. for summer-autumn shipment, but this is 2s. 6d. per ton above buyers' idea of value. Nothing doing on spot. Nitrate of soda is firmer on spot, stocks being much reduced: for good ordinary quality 9s. 6d. required, and for fine quality 9s. 7½d. per cwt. Due cargoes are worth about 8s. 9d. per cwt., and July-October sailings 8s. 10½d. to 9s. 3d. per cwt., according to position.

MISCELLANEOUS CHEMICAL MARKET.

Alkalies all round have a slightly weaker tendency, and in caustic soda some special reductions have been made by the United Alkali Company for particular markets. Spot quotations, however, subject to variations, are as quoted last week, viz.:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s. per ton, 10-ton lots and upwards. In ammonia alkali there is no improvement, either for present or forward delivery, but price appears to have reached the bottom at £3. to £3. 2s. 6d. per ton, bags, f.o.r. makers' works. Soda crystals, bags, 42s. 6d. at makers' works. Bicarbonate £5. 12s. 6d. per ton, f.o.b., in usual packages. For bleaching powder there is still good inquiry, and price is firmly maintained for all markets except the U.S. For the latter market it is stated that some special concession is now being made by the United Alkali Company. Sulphur without improvement at £3. 12s. 6d., makers' works. Vitriol and muriatic acid are unchanged in position. Chlorate of potash and soda quiet, and prices on the spot are 7d. and 8d. per lb., respectively. For yellow prussiate of potash a good demand is maintained, and price is firm at 10½d. Cyanide of potassium is likewise in good request. Sulphocyanides remain low in price, and there is only little inquiry. Ammonia salts generally are in good position, and selling freely at current quotations. For sulphate of copper price continues to recede, and nearest spot quotation is £14. 5s. to £14. 10s., f.o.b. For borax there is little or no improvement in demand. White powdered arsenic continues to realise full rates, and stocks are light. Brown acetate of lime is without any particular movement at the moment, but generally the market has a firmer appearance, and grey is in a like position. Other acetates stationary, and with only moderate inquiry. Potash, caustic and carbonate, remain firm in price, and demand takes off all available supplies. Nitrate of soda is rather easier for forward delivery. Carbolic acid is without change, being so far unaffected by any special demand for summer requirements. Iron salts are in good request, though prices are ruling very low. Reports generally do not indicate any general improvement in the demand for chemicals, and trade is particularly quiet in all the centres of textile manufacture.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 1d., Middlesbrough 35s. 5½d. cash, and hematite 43s. 11d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £38. 15s. to £39. cash, and £39. 2s. 6d. to £39. 7s. 6d. three months. Tin, steady: Straits closed at £68. 10s. to £69. cash, and £69. 2s. 6d. to £69. 12s. 6d. three months; Australian, £69. 2s. 6d.; English ingots, £72. to £72. 10s. Lead, firm: Spanish, £9. 5s.; English, £9. 5s. to £9. 7s. 6d. Silesian Spelter, ordinary, £15. 17s. 6d. Nickel, 1s. 8d. Antimony, £32. Quicksilver: First hands, £6.; second hands, £5. 19s. Copper shares, steady: Cape, 1½ to 1¼; Copiapo, 1½ to 1¼; Libiola, 2½ to 3¼; Mason and Barry, 2¼ to 2½; Rio Tinto, 13½ to 13½; Tharsis, 4¼ to 4¼.

WOLVERHAMPTON, WEDNESDAY.—The quarterly meetings are arranged for next week. To-day's market was firm, and an improved demand is anticipated at the quarterly fixtures. Pig iron sellers would to-day accept nothing less than 40s. for Northampton, 41s. for Derbyshires, and 42s. to 43s. for Lincolnshires, the last-named price being nett. Staffordshire pigs were 40s. to 42s. for part mines, 37s. 6d. common, and 55s. all mine. Manufactured iron was £7. 10s. for marked bars, £6. merchant sorts, and £5. 10s. common. Steel: brisk. Coal: a drug.

GLASGOW, WEDNESDAY.—Market quiet, with small business. Scotch done at 42s. 1d. cash; closing with buyers at 42s. 1d. cash, sellers ask ½d. more. Cleveland done at 35s. 7½d. and 35s. 8d. one month; closing with buyers at 35s. 5½d. cash, sellers ask 1d. more. Cumberland hematite closes with buyers at 43s. 11d. cash, sellers ask 44s. Middlesbrough hematite closes with buyers at 43s. 3½d. cash, sellers ask 43s. 4½d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is dull and slow of sale at £21. per ton, transit. Prices remain unchanged for olive, but the business passing is small. Linseed is steady at 22s. to 23s. per cwt. for Liverpool makes in export casks. Cottonseed is quiet, with an easier tendency, prices being 20s. 9d. to 21s. 3d. per cwt. for Liverpool refined. Castor oil keeps steady, with good seconds Calcutta at 2½d. to 2¼d., and first pressure French 2½d. per lb. Tallow is quietly steady, without any notable change in prices or position. Resin is steady, with a moderate business doing: common 3s. 7½d. per cwt., finer grades steady to firm. Spirits of turpentine continue on the downward grade, and 22s. 9d. to 23s. per cwt. is now quoted. Petroleum neglected: prices, however, remain unaltered at 4¼d. to 5½d. for American and 3½d. to 3¼d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

During the week the North-Eastern Railway Company have announced a reduction in their dock charges, which appears to give satisfaction to all concerned, and more business is anticipated. Many attempts have been made to establish a regular line of steamers between Calcutta and this port, but none have been sufficiently successful to prove permanent. Another attempt is now being made to re-establish a regular communication, and a fortnightly service of steamers has been placed upon the berth for this trade at Calcutta for London and Hull, and vice versa.

OILS.—Trade remains about stagnant, many mills being closed with their warehouses full of cake; therefore, any sudden demand of oil will perceptibly alter prices. The imports of seed have not reached excessive figures for the week, being: Linseed, 5,948 qrs.; cottonseed, 562 tons; and rapeseed, 1,033 qrs. of Ravison from Odessa. Linseed oil has again declined about 7s. 6d. per ton, closing dull at 20s. 1½d. naked spot; July-August, 19s. 10½d.; and September-December or January-April, 18s. 9d.; casks, 17s. 6d.; and ordinary barrels, 22s. 6d. per ton extra; boiled and refined ditto being extra, from £1. to £2. per ton. Export for the week has been 500 cwt. Refined cotton oil remains quiet, at 18s. 9d., naked spot; and same now the nearest

value, July-August; November-April unchanged, at 17s. 9d. Crude oil, 16s. 9d. naked spot; and 16s. November-April. Export of refined for the week has been 1,640 cwt. Spirits of turpentine, 23s. 6d. Olive oil and rape oil unchanged, and slow demand. Castor oil, 2½d. per lb. for first pressure. Cod oil quiet, from £17. to £20. per ton. Sod oil from £16. to £22. per ton. Petroleum jelly, orange, 4d. per lb., and white 8½d. per lb., packed in square tins of 5 lbs.

CAKES.—Linseed cakes, little doing, but prices remain firm. Best makes, 95% pure, £6. 10s. to £6. 12s. 6d. Russians, £6 12s. 6d. Oilcakes, £5. 17s. 6d. Cotton cakes quiet, but prices steady: Best makes, £4. 2s. 6d.; seconds £3. 17s. 6d. per ton; new seed November-March, £4. 5s. to £4. 7s. 6d. Rape cakes: Black Sea, £3.; feeding cakes, £4. 15s. per ton.

PAINTS.—Prices are: White and red leads unchanged. Oxide of iron dry, from £7. to £18. per ton. Venetian red dry, from £3. 15s. per ton; blue black, £4. 5s. per ton; mineral black, £4. per ton; yellow ochre from £3. 15s. per ton.; levigated umber, £4. 5s. per ton.; casks free, f.o.b., English port. Common black varnish £5. 10s. per ton. Oak varnish from 5s. 6d. per gallon. Ready mixed paints in tins from £24. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There is by this time no mistake at all as to the reality of the strike of the miners of Scotland, and that on a scale which very nearly embraces the whole of the country's capacity for coal production; but belief in the protracted perseverance of the strikers is not great. The stoppage, however, owing to the annual holidays of the workmen generally, which will begin to fall due within a few days now, is certain to continue for two or three weeks at least, till the factories begin to get back into full swing again,—that is, those of them that have not already closed definitely to await the conclusion of the coal strike.

Sulphate of ammonia during last week proved itself sensitive to the possible consequences of the strike in restricted production, and took up part of the value a short time before dropped. There is little doing however, and nothing at all for forward.

Mineral oils and paraffins are quiet, but fairly steady in tone at the low values current, with the exception of burning oil, in which there is no new dealing at the season.

General chemicals are feeling the tropical weather a partial hindrance to production, but demand is weak and there is no advance in value worth noting.

Chief prices current are:—Soda crystals £2. nett, Tyne; soda ash 48/52° £3. 12s. 6d. to £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow, caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £22. 10s., and boracic acid, £32. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¾d. less 5%, Liverpool; nitrate of soda, 9s. 6d. to 9s. 7½d.; sulphate of ammonia, £13. 17s. 6d. to £14., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 10s., less 5% Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 3½d. to 4d. per gallon; paraffin oil (burning), standard No. 1 grade, 5d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5. 0s., and 890/895° £4. 0s. to £5. 10s. Week's imports of raw sugar at Greenock were 10,306 bags.

TYNE CHEMICAL REPORT.

TUESDAY.

The chemical market remains unchanged, with the exception of soda crystals, which have advanced 1s. per ton. Bleach quiet, at £7. 5s. to £7. 10s. per ton. Caustic soda, high strength, £10. 10s. per ton. Sulphur £3. 17s. 6d. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 10s. per ton, nett; do., 70°, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett; soda ash, 48%, £3. 12s. 6d. per ton, nett; do., 52%, £3. 16s. 3d. per ton, nett; do., 56%, £4. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett;

chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt 10s. 6d. per ton f.o.b. Tees.

COALS.—Business is steady, and orders are now coming in from Scotland, which has a tendency to stiffen prices. Quotations at present are very irregular. Best Northumbrian steam varies from 11s. 6d. to 12s. per ton; second qualities (steam), 10s. to 10s. 6d. per ton; small (steam), 5s. to 5s. 6d. per ton; bunker coals firmer: 7s. 3d. to 7s. 6d. per ton; gas coals unaltered: 7s. 6d. per ton; coke in good demand: 13s. 6d. to 14s. 6d. per ton.

New Companies.

Hutchinson and Company, Limited.—CAPITAL £130,000., in shares of £10. each. This company has been formed to take over the patents, etc., and business of wholesale rubber manufacturers, now carried on by Messrs. A. Hutchinson and Company. The subscribers to the memorandum of association are:—J. A. Hutchinson, 70, Basinghall-street, E.C., manufacturer; E. E. M. Hutchinson, Langlée, pres Montargis, France, manufacturer; M. R. Hutchinson, Mannheim, Germany, manufacturer; J. Sexton, 70, Basinghall-street, E.C., manufacturer; N. P. W. Brady, 4, King William-street, E.C., solicitor; S. F. F. Kemp, 62, Albert Gate Mansions, Hyde Park, W., accountant; C. G. McLennan, 70, Basinghall-street, E.C., clerk.

Fraser and Fraser, Limited.—CAPITAL £30,000., in £10. shares. This company has been formed to take over the business of boiler makers and engineers, now carried on by G. C. Fraser and others. The subscribers to the memorandum of association are:—G. C. Fraser, Railway Works, Bromley-by-Bow, engineer; S. P. Fraser, Railway Works, Bromley-by-Bow, engineer; E. W. Fraser, Railway Works, Bromley-by-Bow, engineer; J. C. Mead, Ravenswood, Woodford Green, Essex, shipowner; J. S. Sawrey, 20, Bucklesbury, E.C., engineer; F. J. Bartholomew, 61, Powerscroft-road, Lower Clapton, accountant; C. J. Bennett, 7, Capel-terrace, Forest Gate, clerk.

Lever Brothers, Limited.—The subscribers to the memorandum of association in this company, the particulars of which were partly given last week are as follows:—E. V. Salaman, 224, Portsdown-road, W., agent; E. J. Dance, 27, Ruth-street, Bolton, agent; T. J. Riseborough, 11, Langton-road, S.W., cashier; F. J. Sculley, 72, Hols-worthy-square, W.C., clerk; F. Stacey, 60, Nelson-square, Blackfriars, clerk; F. D. Percival, St. Paul's-road, Tottenham, N., clerk; N. Gliuz, 5, Western-road, S.W., clerk.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

W. HOLMES, D. HOLMES, AND W. A. HOLMES, salt merchants and distributors under the style of David Holmes and Sons: Liverpool.

C. RUSSELL AND A. MANLEY, varnish makers, Wolverhampton, under the style of Manley and Co.

J. CAFFIN, E. CAFFIN, AND F. J. S. LILLINGTON, oil cake and artificial manure merchants, Chichester and Portsmouth, under the style of Caffin, Son and Lillington, so far as regards F. J. S. Lillington.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Scouring and Degreasing Wool. W. E. Heyes. 11,754. June 18.
Treating Paraffin Scale. J. Calderwood and J. Hodges. 11,801. June 18.
Apparatus for the Rapid and Economical Production of Ozone. J. H. Lamprey. 11,810. June 19.
Manufacture of Soap. J. McDonald. 11,823. June 19.
Manufacture of Silicate and Carbonate of Soda. G. Bamberg. 11,859. June 19.
Improvements in Apparatus for Producing Chlorine from Hydrochloric Acid Gas and Air by Catalytic Action. J. Brock, V. C. Driffield, and F. W. Wright. 11,966. June 20.
Improvements in Apparatus for Producing Chlorine from Hydrochloric Acid Gas and Air by Catalytic Action. J. Brock, V. C. Driffield, and F. W. Wright. 11,967. June 20.
Apparatus for Manufacturing Chlorine. J. Brock, V. C. Driffield, and F. W. Wright. 11,968. June 20.
Preparation of Sulphur. G. S. Albright and J. J. Hood. 11,988. June 21.

Apparatus for Treating Sewage. W. Evans. 11,991. June 21.
Improvements in Soap Frames. A. E. Benjamin. 12,022. June 21.
Smoke-Consumer. J. Butler. 12,033. June 21.
Carbonizing Rags, Wool, etc. A. J. Boul. 12,047. June 21.
Artificial Fuel. W. H. Briggs and R. R. Greenhow. 12,048. June 22.
Manufacture of Soap. J. P. F. Field. 12,072. June 22.

Manufacture of Bicarbonate of Soda. H. R. Angel. 12,086. June 22.
Preventing Boiler Incrustation. A. F. Law. 12,107. June 22.
Removing Arsenic, Antimony, and Bismuth from Copper Liquors by an Iron Salt. W. A. Jenkin. 12,171. June 23.
Manufacture of Cyanides. H. V. Castner. 12,218. June 23.
" " " 12,219. "

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 23rd.

Acetic Acid—
Holland, 172 pkgs. A. & M. Zimmermann
" 69 Beresford & Co.
Alkali—
Belgium, 220 c. Arnati & Harrison
Alumina Sulphate—
Holland, 30 pkgs. H. Wallace & Co.
Aluminium—
Holland, 1 t. Philipps & Graves
Ammonium Chloride—
Holland, 4 pkgs. Kaltenbach & Schmitz
Belgium, 3 Beresford & Co.
Anthracene—
France, 101 pkgs. Burt, Boulton & Co.
Antimony Ore—
Portugal, 3 t. Knowles & Co.
Italy, 150 Novelli & Co.
Asbestos—
France, 236 Mory & Co.
Italy, 124 Imperial Asbestos Co.
Barytes—
Germany, 113 cks. R. W. Greeff & Co.
Holland, 10 Beresford & Co.
" 23 O'Hara & Hoar
Belgium, 22 R. Bew
" 7 J. L. Lyon & Co.
" 85 pkgs. W. Harrison & Co.
Bleaching Soda—
Germany, 71 c. H. Lambert
Boric Acid—
Italy, 6 pkgs. F. Boehm
" 21 Horne & Co.
Camphor—
Japan, 25 pkgs. R. Warner & Co., Ltd.
Hong Kong, 73
" 107 S. Figgis & Co.
Japan, 203 tubs. Hamel & Co.
Germany, 2 cs. T. H. Lee
Caoutchouc—
E. Indies, 50 c. Prop. Bull Wf.
France, 1 C. Atkins & Nisbet
" 3 Mess Parisiennes
Ibo, 7 L. & I. D. Jt. Co.
E. Indies, 480
Japan, 724
Zanzibar, 74
" 30 Clarke & Smith
Ceylon, 125 Ralli Brs.
France, 13 H. Johnson & Sons
Rangoon, 224 Middleton's S. S. Wf. Co.
Castor Oil—
Belgium, 20 brls. Beresford & Co.
E. Indies, 244 cks. Ross & Deering
" 157 Cayzer, Irvine & Co.
" 50 cs. Anderson, Weber & Smith
Italy, 20 City Coml. Wf. Ltd.
" 25 Major & Field
Caustic Potash—
France, 20 drs. Carey & Sons
" 20 Spies Brs. & Co.
" 200 c. F. W. Berk & Co.
Chemicals (otherwise undescribed)
Holland, 17 pkgs. J. Owen
France, 1 White Brs.
Germany, 109 T. H. Lee
" 77 A. & M. Zimmermann
Holland, 48 G. Rahn & Co.
Citrate of Lime—
Italy, 51 pkgs. B. Jacob & Sons
Cobalt Ore—
Australia, 90 t. G. H. Carter

Cream of Tartar—

Italy, 8 pkgs. Thames S. T. & L. Co., Ltd.
Spain, 6 W. C. Bacon & Co.
France, 30
" 10 M. Ashby, Ltd.
" 5 F. C. Devon & Co.
" 2 Sharland & Co.
" 2 G. Ward & Sons
" 14 B. & F. Wf. Co.
Spain, 5
Cryolite—
Denmark, 446 M. D. Co.
Dyestuffs—
Argols
Italy, 128 pkgs. Thames S. T. & L. Co., Ltd.
" 2,495 B. Jacob & Sons
France, 10 B. & F. Wf. Co.
Cutch
China, 600 pkgs. Anderson, Weber & Smith
Extracts
Austria, 114 pkgs. J. Graves
France, 60 Prop. Chmbln.'s Wf.
Denmark, 1 ck. J. Sinclair & Son
" 13 pkgs. 14 cs. A. F. White & Co.
" 1 Salter Flokes
Natal, 50 Boucher, Mortimore & Co.
France, 20 Beresford & Co.
" 255 L. J. Levinstein & Sons
" 25 T. H. Lee
Belgium, 40 H. Johnson & Sons
Functic
Mexico, 30 t. Browne, Graham & Co.
Gambler
E. Indies, 490 pkgs. Brown & Elmslie
" 3,158 R. & J. Henderson
" 1,992 Adamson, Gilfillan & Co.
" 833 Beresford & Co.
" 238 E. Boustead & Co.
" 448 Ashmore & Son
" 44 Brinkmann & Co.
" 227 Winsor & Co.
" 920 L. & I. D. Jt. Co.
Indigo
E. Indies, 22 chts. Croysdale & Co.
" 98 L. & I. D. Jt. Co.
" 52 Park, Macfayden & Co.
" 19 Ross & Deering
" 52 R. Vohn Glehn & Sons
" 9 H. Johnson & Sons
" 16 Eales & Rutherford
" 3 Benecke, Souchay & Co.
" 64 Arbuthnot, Latham & Co.
" 15 Parry & Co.
" 10 E. Bower & Co.
" 22 Stansbury & Co.
Hong Kong, 1 L. & I. D. Jt. Co.
Myrabolams
E. Indies, 200 pkgs. L. & I. D. Jt. Co.
" 6,779 W. Shelcott
" 673 A. Hagan
" 1,000 P. & O. Co.
Orchella
E. Indies, 10 pkgs. Hoare, Wilson & Co.
Ceylon, 25 L. & I. D. Jt. Co.
Spain, 2 pkgs. Middleton's S. S. Wf. Co.
" 1 B. & N. Wf. Co.
Shumac
Italy, 250 pkgs. J. Kitchen, Ltd.
Tanners' Bark
N. Zealand, 12 t. L. & I. D. Jt. Co.
Belgium, 20 T. H. Lee
" 14 Cleve & Hooper
" 17 Leach & Co.

Turmeric

E. Indies, 113 pkgs. Brown & Elmslie
China, 300 J. Owen
E. Indies, 120 Major & Field
" 560 Beresford & Co.
" 68 Clyde S. Co.
" 505 Prop. Sun Wf.
Valonia
E. Turkey, 44 t. H. Gluck & Co.
Farina—
Holland, 100 pkgs. J. Barber & Co.
" 50 Ohlenschlager Brs.
Germany, 500 J. Knill & Co.
French Chalk—
Italy, 450 W. Harrison & Co.
Glucose—
San Francisco, 415 pkgs. 2,420 c. Pickford & Co.
Holland, 100 pkgs. 100 c. Prop. Sun Wf.
Germany, 25 99 Chmbln.'s Wf.
France, 200 200 L. Norman & Co.
U. States, 97 582 Deering & Robottom
" 820 800 T. M. Duche & Sons
Guano—
Algeria, 30 t. D. de Pass & Co.
Infusorial Earth—
B. W. I., 10 Dawson Brs.
Germany, 35 pkgs. Beck & Pollitzer
Iron Bromide—
Germany, 18 pkgs. A. & M. Zimmermann
Lead Acetate—
Germany, 16 pkgs. Beresford & Co.
Manganese—
N. Zealand, 40 t. A. B. Curtis & Co.
" 230 W. A. Sparrow
Australia, 90 Harrold Brs.
Japan, 110 Matheson & Co.
Manure—
Gibraltar, 60 t. T. Clark
" 2,330 W. Montgomery & Co.
Germany, 10 F. W. Berk & Co., Ltd.
Algeria, 100 D. de Pass & Co.
Mica—
Ceylon, 15 L. & I. D. Jt. Co.
Naphthalene—
Germany, 8 pkgs. Fleming's Oil Co.
Ochre—
France, 24 brls. Ross & Deering
Holland, 2 cs. 6 cks. Philipps & Graves
France, 133 W. Harrison & Co.
Oxalic Acid—
Norway, 18 pkgs. A. P. Morris
Paraffin Wax—
U. States, 100 brls. Anglo-American Oil Co.
" 350 H. Hill & Sons
" 80 Prod. Brokers Co.
Phosphate Rock—
U. States, 2,200 t. A. Hunter & Co.
France, 442
" 234 Anglo-Contl. G. Wks.
Belgium, 170 D. de Pass & Co.
Algeria, 500 Anglo-Contl. G. Wks.
Pitch
Adelaide, 27 bgs. J. Greig
Germany, 200 cks. Linck, Moeller, & Co.
Plumbago—
Ceylon, 408 brls. R. G. Hall & Co.
" 212 J. Thredder, Sen. & Co.
Germany, 17 cks. B. Galloway
" 34 Fellows, Morton, & Co.
E. Indies, 20 bgs. J. Mitchell
Ceylon, 55 brls. L. & I. D. Jt. Co.
" 68 Doulton & Co.

Potash—

France, 70 c. Petri Brs.
Canada, 124 Charles & Fox
Potassium Bicarbonate—
Holland, 10 cks. A. & M. Zimmermann
Potassium Carbonate—
Germany, 98 c. Petri Brs.
France, 2 cks. Beresford & Co.
Potassium Oxymuriate—
France, 100 pkgs. G. Boor & Co.
Belgium, 10
Pumice Stone—
Italy, 5 t. Acton & Borman
" 1 O'Hara & Hoar
" 20 T. Hill Jones
" 5 Seaward Brs., Ltd.
" 3 B. & N. Whvs. Co.
Holland, 1 G. Rahn & Co.
Pyrites—
Spain, 1,338 t. Naylor, Benzon, & Co.
Quicksilver—
Spain, 100 btl. L. & I. D. Jt. Co.
Rosin—
U. States, 4,973 brls. F. & S. Chiesmann & Co.
Salacetos—
Norway, 10 pkgs. A. P. Morris
Sodium Hyposulphite—
Holland, 200 pkgs. J. Owen
" 21 F. Boehm
Germany, 100 Berger, Kahler, & Co.
Sodium Sulphate—
Belgium, 3 cks. Ross & Deering
Starch—
Belgium, 80 pkgs. Leach & Co.
" 281 T. H. Lee
Germany, 1,860 Horne & Co.
" 26 Philipps & Graves
Holland, 1,361 Little & Johnston
" 120 Philipps & Graves
" 30 A. G. Robinson & Co.
Austria, 50 M. D. Co.
Stearine—
Belgium, 124 bgs. H. Hill & Sons
" 66 C. S. Lovell
France, 235 G. Boor & Co.
Sulphur—
Italy, 55 t. J. Besant
" 42 Robinson & Co.
" 21 Co-op. Lightre Association, Ltd.
" 10 Jessop & Co.
Belgium, 1 Ross & Deering
Tallow and Stearine—
U. States, 18 cks. Cheseborough Manufacturing Co.
Tartaric Acid—
Germany, 10 pkgs. F. C. Devon & Co.
Holland, 26 B. & F. Wf. Co., Ltd.
" 56 Kirkpatrick & Co.
Ultramarine—
Germany, 3 cs. H. Brooks & Co.
Holland, 8 Philipps & Graves
" 6 Haefner, Hilpert & Co.
" 20 cks. Thames S. T. & L. Co., Ltd.
" 5 cs. Hernu, Peron & Co.
" 4 cks. Magee, Taylor & Co.
Varnish—
Germany, 6 pkgs. L. & I. Dk. Co.
" 2 H. Lambert
U. States, 10 Blundell, Spence & Co.
France, 3 Flageollet & Co.
" 3 J. Greig & Co.
U. States, 24 Pinchin, Johnson & Co.
White Lead—
Holland, 30 cks. A. & M. Zimmermann
Belgium, 5 J. L. Lyon & Co.

Germany, 80	Steinhoff & Sons
" 2	W. A. Rose & Co.
" 41	M. Ashby, Ltd.
" 37	Randall Bros.
" 25	Burrell & Co.
France, 17	"
Wood Pulp—	
Sweden, 1,032 pkgs.	J. Dickinson & Co.
Holland, 1,471	E. J. & W. Goldsmith
" 84	Henderson, Craig, & Co.
Norway, 340	" J. Owen
Holland, 81	" L. Koblauch
Portugal, 50	"
Zinc Ashes—	
Australia, 10 t.	C. Tennant, Sons, & Co.
Zinc Oxide—	
Holland, 50 cks.	Burrell & Co.
" 52 brls.	M. Ashby, Ltd.
Germany, 23 cks.	J. Matton

LIVERPOOL.

Week ending June 21st.

Acetate of Lime—	
New York, 736 bgs.	
Alkali—	
Hamburg, 10 cs.	
Barytes—	
Antwerp, 11 cks. 60 bgs.	
Rotterdam, 21	
Hamburg, 9	
Bone Ash—	
Kingston, 16 bgs.	M. Bell
Boracic Acid—	
Hamburg, 1 ck.	
Castor Oil—	
Hamburg, 5 cs.	
Chrome Ore—	
Volo, 350 t.	G. G. Blackwell & Co.
Colours—	
Hamburg, 3 cks. 12 cs. 15 bskts	
Boston, 4	Taylor, Irvine & Co.
Rotterdam, 3	
Cottonseed Oil—	
New Orleans, 100 brls.	
New York, 1 brl. W. Skelton & Co.	
Cream of Tartar—	
Barcelona, 10 pps.	
Dyestuffs—	
Divi Divi	
Kingston, 94 bgs.	M. Bell
Hamburg, 187	
Extracts	
New Orleans, 100 bxs.	
Baltimore, 25 brls.	Roberts, Dale & Co.
Fustic	
Colon, 1,392 ps.	Widow, Duranty & Son
Indigo	
Karachi, 20 cs.	
Legwood	
Laguna, 720 qtls.	
Madder	
Rotterdam, 2 cks.	
Saffron	
Valencia, 1 cs.	
Sumac	
Palermo, 100 bgs.	J. Kitchin, Ltd.
Valonia	
Smyrna, 147 t.	Barry Bros.
Farina—	
Fiume, 120 bgs.	
Glucose—	
Hamburg, 50 cks.	
Mica—	
New York, 10 brls.	T. Robinson & Son

Mineral White—	
Trieste, 100 bls.	
Nickel—	
New York, 1 cs.	
Paint—	
Boston, 10 cs.	
Paraffin Wax—	
Baltimore, 86 brls.	
Plumbago—	
Genoa, 100 bgs.	
Potashes—	
Rouen, 13 cks.	Co-op. W'sale Society, Ltd.
Montreal, 31 brls.	
Antwerp, 43 dms.	
Dunkirk, 24	

Pyrites—	
Huelva, 1,356 t.	Matheson & Co.
" 2,025	
Rosin—	
Baltimore, 1,633 brls.	
Salt—	
New York, 6 bgs.	
Saltpetre—	
Hamburg, 50 brls. 1 ck. 35 kgs.	
Karachi, 90 bgs.	
Soap—	
New York, 5 cs.	Borroughs, Wellcome & J. Thompson
Boston, 2	
Soapstone—	
Genoa, 800 bgs.	W. Harrison
Sodium Biorate—	
Hamburg, 3 cks.	
Starch—	
Antwerp, 18 cks. 106 cs.	J. T. Fletcher & Co.
" 140	
Rotterdam, 37	
New York, qty.	
Stearine—	
New York, 50 tcs.	
Antwerp, 33 bgs.	
Sulphuric Ether—	
Hamburg, 7 cs.	
Tallow—	
New York, 200 tcs.	Eastman's Ltd.
Zarati, 9 brls. 210 pps.	J. Nelson & Sons, Ltd.
B. Ayres, 155 cks.	Houlder Bros. & Co.
" 44 pps.	443 hf. pps. H. Bracht & Co.
Boston, 20 hds.	Swift Beef Co.
" 120	
New York, 300 tcs.	
Frey Bentos, 200	753 cks. 266 hds.
Tartar	
Bordeaux, 7 cks.	
Tartaric Acid—	
Rotterdam, 8 cks.	
Turpentine—	
Savannah, 2,823 brls.	
Ultramarine—	
Hamburg, 20 cks.	
Verdigris—	
Bordeaux, 6 cks.	
White Lead—	
Antwerp, 8 brls.	
Rotterdam, 50 cks.	
Wood Pulp—	
Oporto, 500 bls.	Ciama Wood Pulp Co.
Wood Spirit—	
Hamburg, 3 dms.	
Zinc Oxide—	
Antwerp, 80 brls.	
Zinc White—	
Hamburg, 80 cks.	

MANCHESTER.

Week ending June 23rd.

Albumen—	
Treport, 15 cs.	
Hamburg, 2	
Alumina Sulphate—	
Rotterdam, 39 cks.	Simpson, Howden, & Co.
Aniline Colours—	
Hamburg, 17 cks. 8 cs.	
Antimony Oxalate—	
Rotterdam, 2 cks.	Simpson, Howden, & Co.
Barium Chloride—	
Rotterdam, 3 cks.	
Hamburg, 10	
Carbonic Acid—	
Rotterdam, 20 tubes.	
Castor Oil—	
Antwerp, 6 brls.	
Chemicals (otherwise undescribed)	
Rouen, 42 cks.	J. & P. Hutchinson
Bordeaux, 13	
Hamburg, 6	1 cs.
Colours—	
Rotterdam, 33 cs. 21 brls. 4 cks.	Simpson, Howden, & Co.
" 30 cs. 128 cks.	
Antwerp, 2	1 2 brls.
Treport, 2	12
Hamburg, 9	

Dyestuffs—	
Alizarine	
Rotterdam, 4 brls. 1 cs.	Simpson, Howden, & Co.
Annatto	
Bordeaux, 22 hds.	J. & P. Hutchinson
Extracts	
Treport, 47 cks.	
Bordeaux, 100	J. & P. Hutchinson
Litharge—	
Rotterdam, 24 cks.	Simpson, Howden, & Co.
Pitch—	
Rotterdam, 23 brls.	Simpson, Howden, & Co.
Potash—	
Treport, 46 dms. 3 cks.	
Salt—	
Antwerp, 2 brls.	
Sodium Naphthionate—	
Rotterdam, 1 cs. 3 brls.	Simpson, Howden, & Co.
Starch—	
Antwerp, 100 cs.	
Hamburg, 288	
Tartaric Acid—	
Rotterdam, 20 kgs. 1 ck.	Simpson, Howden, & Co.
" 8 cks.	
Tin Oxide—	
Rotterdam, 1 cs.	Simpson, Howden, & Co.
Ultramarine—	
Rotterdam, 14 cs.	
Hamburg, 12 cks.	
Waste Salt—	
Hamburg, qty.	
Wood Spirit—	
Hamburg, 3 dms.	

HULL.

Week ending June 23rd.

Acid—	
Leghorn, 40 cks.	Wilson, Sons, & Co., Ltd.
Asbestos—	
Genoa, 29 pks.	Wilson, Sons, & Co., Ltd.
Barytes—	
Antwerp, 66 cks.	Bailey & Leatham
Rotterdam, 22	W. & C. L. Ringrose
Bremen, 46	Tudor & Sons
" 64	
Rotterdam, 23	Hutchinson & Son
Bone Meal—	
Bombay, 4,431 bgs.	
Camphor—	
Hamburg, 1 ck.	Wilson, Sons, & Co., Ltd.
Carbolic Acid—	
Amsterdam, 47 cks.	W. & C. L. Ringrose
Carbonic Acid—	
Rotterdam, 50 tubes.	Hutchinson & Son
Castor Oil—	
Leghorn, 10 cs.	Wilson, Sons, & Co., Ltd.
Genoa, 20	"
Marseilles, 18 pks.	"
Chemicals (otherwise undescribed)	
Stettin, 18 brls.	Wilson, Sons, & Co., Ltd.
Bari, 38 cks.	"
Antwerp, 23	"
Dunkirk, 94 pks.	"
Hamburg, 32	"
Colours—	
Rotterdam, 129 cks. 68 cs.	Hutchinson & Son
" 35 pks. 8	7 W. & C. L. Ringrose
" 1	Spence, & Co. Veltmann & Co.
Bremen, 5	
Hamburg, 3	Bailey & Leatham
Rotterdam, 20	Wilson, Sons, & Co., Ltd.
Antwerp, 121	
Hamburg, 5	138 brls.
" 11	
" 10 cs.	G. Malcolm & Son
Cottonseed Oil—	
New York, 100 brls.	Wilson, Sons, & Co., Ltd.
Cryolite—	
Copenhagen, 3 cks.	Wilson, Sons, & Co., Ltd.
Dextrine—	
Stettin, 100 bgs.	Wilson, Sons, & Co., Ltd.
" 50	
Dyestuffs—	
Alizarine	
Rotterdam, 3 pks. 4 cks.	W. & C. L. Ringrose
" 12 brls.	Hutchinson & Son
Fustic	
Trieste, 10 t.	Wilson, Sons, & Co., Ltd.
Myrabolams	
Bombay, 16,317 bgs.	
Shumac	
Palermo, 2,200 bgs.	
Shumac Extract	
Trieste, 80 brls.	Wilson, Sons, & Co., Ltd.
Farina—	
Harlingen, 350 bls.	
Stettin, 100 bgs.	Wilson, Sons, & Co., Ltd.
" 200	
Ghent, 100 cs.	"
Glucose—	
Hamburg, 100 bgs.	A. C. Hornstedt & Co.
New York, 100 brls.	
Guano—	
Drontheim, 2 bgs.	Wilson, Sons, & Co., Ltd.
Kaolin—	
Rotterdam, 20 cks.	Reckitt & Sons
Manure—	
Ghent, 800 bgs.	Wilson, Sons, & Co., Ltd.
Ochre—	
Marseilles, 76 cks.	Wilson, Sons, & Co., Ltd.
" 63	
Paint—	
Christiania, 5 cs.	Wilson, Sons, & Co., Ltd.
Pitch—	
Antwerp, 20 cks.	Bailey & Leatham
Archangel, 300 brls.	
Potash—	
Antwerp, 2 cs.	Bailey & Leatham
Pumice Stone—	
Messina, 25 cs.	Wilson, Sons, & Co., Ltd.
Leghorn, 12 cks.	"
Quicksilver—	
Hamburg, 4 btl.	Wilson, Sons, & Co., Ltd.
Rosin—	
Wilmington, 3,850 brls.	J. M. Hamilton & Co.
Savannah, 750 brls.	
Soap—	
Bari, 209 cs.	Wilson, Sons, & Co., Ltd.
Marseilles, 15	"
Sodium Nitrate—	
Rotterdam, 4 cks.	Hutchinson & Son
Sodium Silicate—	
Antwerp, 20 brls.	Wilson, Sons, & Co., Ltd.
Starch—	
Bremen, 3,689 cs.	Veltmann & Co.
Antwerp, 330	Wilson, Sons, & Co., Ltd.
Stearine—	
Antwerp, 43 pks.	Wilson, Sons, & Co., Ltd.
Sulphur—	
Catania, 50 t.	
Talc—	
Genoa, 50 bgs.	Wilson, Sons, & Co., Ltd.
Tar—	
Stockholm, 10 brls.	Wilson, Sons, & Co., Ltd.
Archangel, 1,900	
Tartaric Acid—	
Rotterdam, 2 cks.	Hutchinson & Son

Turpentine —		
Savannah,	1,982 brls.	
Trieste,	5 cs.	Wilson, Sons, & Co., Ltd.
Ultramarine —		
Rotterdam,	2 cks. 1 cs.	
Varnish —		
New York,	32 brls.	Wilson, Sons, & Co., Ltd.
Verdigris —		
Marseilles,	2 kgs. 30 cks.	Wilson, Sons, & Co., Ltd.
White Lead —		
Rotterdam,	36 cks.	Hutchinson & Son
Antwerp,	24	Bailey & Leatham
Rotterdam,	49	W. & C. L. Ringrose
Zinc Oxide —		
Rotterdam,	25 cks.	

GLASGOW.

Week ending June 28th.

Acetate of Lime —		
Philadelphia,	708 bgs.	
Aniline —		
Hamburg,	44 cks.	
Asbestos —		
Antwerp,	1 bg.	
Barium Sulphate —		
Antwerp,	200 bgs. 23 cks.	
Hamburg,	1 ck.	
Barytes —		
Rotterdam,	46 cks.	J. Rankine & Son
	5*	

Borax —		
Christiania,	1 ck.	
Castor Oil —		
Antwerp,	29 cks.	
Colours —		
Rotterdam,	6cs. 10cks. J. Rankine & Son	
	9 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	45 pkgs.	
Cutch		
Calcutta,	1,575 cs.	
Farina —		
Hamburg,	264 bgs.	
Delfsryhl,	150	
Guano —		
Tromsøe,	340 bgs.	
Paint —		
Gothenburg,	3 brls.	
Montreal,	20 kgs.	
Painters' Colours —		
Antwerp,	2 cks.	
Saltpetre —		
Calcutta,	1 pkge.	
Soda —		
Hamburg,	3 cks.	
Sodium —		
Rotterdam,	1 cs.	
Sodium Sulphate —		
Hamburg,	20 bgs.	
Starch —		
Antwerp,	100 cs. 50 bgs.	
Amsterdam,	40 bxs.	
Tartar Emetic —		
Hamburg,	6 cks. 1 cs.	
Ultramarine —		
Rotterdam,	1 cs.	

Waste Salt —		
Hamburg,	607 bgs. 134 cks.	
White Lead —		
Rotterdam,	10 cks.	
Wood Pulp —		
Christiania,	3,210 bls.	
Zinc Oxide —		
Antwerp,	25 cks.	

TYNE.

Week ending June 23rd.

Aluminium —		
Antwerp,	1 ck.	Tyne S. S. Co.
Barium Chloride —		
Hamburg,	4 cks.	
Barytes —		
Rotterdam,	255 bgs. 57 cks.	Tyne S. S. Co.
Antwerp,	25 cks.	"
Colours —		
Rotterdam,	2 bxs.	Tyne S. S. Co.
Antwerp,	4 cks.	"
Hamburg,	1 cs.	"
Extracts —		
Antwerp,	26 bls.	Tyne S. S. Co.
Glucose —		
New York,	200 brls.	
Hamburg,	50 bgs.	
Linseed Oil —		
Rotterdam,	6 brls.	Tyne S. S. Co.
Phosphate —		
Antwerp,	220 ts.	
Rosin —		
Wilmington, U.S.A.,	4,000 brls.	
Superphosphate —		
Antwerp,	500 bgs.	Tyne S. S. Co.
Tallow —		
New York,	50 hhds.	

GOOLE.

Week ending June 20th.

Alumina Sulphate —		
Rotterdam,	16 cks.	
Caoutchouc —		
Boulogne,	2 cks.	
Dyestuffs —		
Logwood		
Belize,	475 L.	
Madder		
Rouen,	1 ck.	
Dyestuffs (otherwise undescribed)		
Boulogne,	7 cks. 13 cs.	
Potash —		
Dunkirk,	2 cks.	
Saltpetre —		
Hamburg,	2 cks.	
Waste Salt —		
Hamburg,	293 t. 1,014 bgs.	

GRIMSBY.

Week ending June 23rd.

Chemicals (otherwise undescribed)		
Hamburg,	16 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	25 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending June 27th.

Acids —		
Christiania,	1 ck.	£12
Alkali —		
Vera Cruz,	10 c.	£5
Alum —		
Algoa Bay,	10 c.	£3
Alum Cake —		
Melbourne,	5 t.	£14
Calcutta,	38	125
Gothenburg,	10	30
Aluminous Cake —		
Copenhagen,	176 t.	£380
Ammonia (Liquid) —		
Szanghai,	15 c.	£27
M. Video,	4	18
Hamburg,	4	31
Cologne,	5	41
Penang,	3	21
Colombo,	3 cyldrs.	£10
Madras,	6 cs.	18
Ammonium Carbonate —		
Hamburg,	1 t. 2 c.	£36
Melbourne,	5	9
Sydney,	15 cs.	29
E. London,	1	2
Ammonium Chloride —		
Melbourne,	5 c.	£10
Ghent,	2 cks.	12
Trebizonde,	2 t. 14 c.	100
Ammonium Nitrate —		
Bilbao,	67 cks.	£359
Ammonium Sulphate —		
Cullera,	25 t. 6 c.	£355
Amsterdam,	50	700
Rotterdam,	22	300
St. Kitts,	12	172
Hamburg,	130	1,820
arsenic —		
Wellington,	2 t. 5 c.	£41
Timaru,	8	6
arium Binocide —		
Paris,	15 t. 15 c.	£500
Barium Nitrate —		
Bombay,	4 cs.	£25
Calcutta,	6 c.	6

Barium Sulphate —		
Leghorn,	40 cks.	£121
Benzoic Acid —		
Baltimore,	2 cs.	£13
Bisulphite of Lime —		
Bombay,	10 brls.	£22
Bone Ash —		
E. London,	15 c.	£26
Boracic Acid —		
Sydney,	15 c.	£26
Borax —		
Townsville,	10 c.	£12
Melbourne,	7 t.	360
Hamburg,	10	26
Auckland,	1 t.	30
E. London,	30 kgs.	55
Sydney,	5	6
Calcined Magnesia —		
Hamburg,	1 cs.	£12
Carbolic Acid —		
Baltimore,	6 cs.	£23
Sydney,	5	19
Antwerp,	4	5
Marseilles,	18 c.	22
Hioogo,	20 dms.	51
Hobart,	1 c.	10
Dusseldorf,	5 t.	266
Carbon Bisulphide —		
Otago,	20 dms.	£10
Carbonic Acid Gas —		
Jersey,	33 tubes	£12
Caustic Potash —		
Melbourne,	1 t. 10 c.	£38
Caustic Soda —		
Christchurch,	10 t.	£86
Melbourne,	2 3 c.	53
Sydney,	1 1	25
Natal,	2 1	50
Singapore,	6	5
Chemicals (otherwise undescribed)		
Natal,	1 cs.	£15
Cologne,	5	60
Calcutta,	3 cks.	10
Adelaide,	40 pks.	40
B. Ayres,	50 cs.	110
Bombay,	6 pkgs.	31
Singapore,	1 cs.	5

Citric Acid —		
Rotterdam,	10 kgs.	£68
Riga,	2	14
Lytelton,	1 cs.	4
B. Ayres,	1	4
Bombay,	1 2 c.	25
Hamburg,	1 t. 1	141
Genoa,	2 13	371
Brisbane,	8	53
Antwerp,	3	21
Algoa Bay,	2	14
St. Petersburg,	10	70
Rosario,	5 kgs.	33
Odessa,	1	7
Coal Products —		
Alizarine		
Boston,	50 cks.	£715
Aniline Dyes		
Calcutta,	2 cs.	£39
Otago,	1	6
Genoa,	2	12
Aniline Oil		
Genoa,	10 dms.	£275
Anthracene		
Dusseldorf,	372 cks.	£1,480
Benzol		
Boulogne,	20 pms. 12 cks.	£268
Otago,	20 dms.	6
Melbourne,	10	4
Canterbury,	10	2
Terneuzen,	39	333
Calais,	17 cks.	126
Rotterdam,	40	200
Hamburg,	24 dms.	183
Naphtha		
Otago,	20 dms.	£22
Melbourne,	20	12
Naphthaline		
Passages,	30 bgs.	£15
Le Treport,	50 1 ck.	39
Hamburg,	16 cks.	55
Pitch		
B. Ayres,	67 brls.	£31
Newport News,	480 bgs.	150
Philadelphia,	2,392	390
Alexandria,	300 brls.	82
New York,	1,000 cks.	303
Dunkirk,	315 t.	538
St. Lucia,	5 brls.	3
Antwerp,	250 t.	362
Malta,	100 brls.	30

Pyridine		
Hamburg,	23 cks.	£169
Tar		
Hamburg,	50 dms.	£8
Melbourne,	25	5
Sydney,	100 brls.	25
Algoa Bay,	310 dms.	11
Cape Town,	230	63
Las Palmas,	8 brls.	4
St. Lucia,	8	11
Brisbane,	30 dms.	5
Toluol		
Hamburg,	25 cks.	£90
Rotterdam,	49 runs.	150
Boulogne,	12 cks.	139
Coal Products (otherwise undes.)		
Las Palmas,	5 brls.	£5
Sydney,	50	35
Singapore,	15 dms.	12
Copper Sulphate —		
Melbourne,	2 cs.	£45
Ghent,	1 ck.	2
Messina,	1 t. 3 c.	17
Bordeaux,	2 10	42
Treport,	10	175
Paris,	15	250
Oporto,	1 3	20
Lisbon,	50	780
Boulogne,	5 4	90
Cream of Tartar —		
Cooktown,	2 c.	£7
Sydney,	21 cks.	95
B. Ayres,	5	16
Melbourne,	1 t.	66
Auckland,	15	52
Durban,	2 cs.	8
Adelaide,	1 15	115
Disinfectants —		
Otago,	8 cs.	£45
Penang,	2 t. 19 c.	105
Calcutta,	3 15 200 dms.	92
Sydney,	10 cs.	31
Aden,	6	16
Adelaide,	295 pks.	266
Algoa Bay,	10 t. 7 c.	55
Canterbury,	4 cs.	12
Antigua,	8	14
Kurrachee,	1	10

Guano— St. Kitts, 5 t. £56	Tartaric Acid— Sydney, 1 t. 10 c. £140 Melbourne, 5 473 Calcutta, 2 cks. 12 B. Ayres, 5 152 St. Petersburg, 4 6 Canterbury, 8 38	Caustic Potash— Chicago, 19 c. £23 Fiume, 10 13	Konigsberg, 5 2 3 Christiania, 1 8 3 Catania, 1 2 2 Ancona, 15 18 Brindisi, 22 19 Alexandria, 2 1 Leghorn, 5 3 71 Venice, 9 19 1 Gothenburg, 1 7 3 N. Orleans, 22 16 Rouen, 2 Brisbane, 1 Valparaiso, 2 4 3 Marseilles, 190 3 3 Lisbon, 6 14 2
Metallic Sodium— Hamburg, 3 t. £949	Tin Crystals— St. Kitts, 1 c. £5	Caustic Soda— Adelaide, 35 dms. Alexandria, 30 Ancona, 131 Baltimore, 600 Bombay, 18 Bordeaux, 17 Calcutta, 208 Callao, 50 Cartagena, N.G., 20 Catania, 75 Fiume, 30 5 brls. Genoa, 319 Halifax, 35 Havre, 18 Marseilles, 58 Melbourne, 15 Montreal, 10 Newport News, 115 New York, 200 140 50 bxs. Odessa, 100 Oporto, 43 Palermo, 5 Quebec, 31 100 pkgs. Rio de Janeiro, 54 Rotterdam, 73 Seville, 400 Shanghai, 43 Smyrna, 100 Talcabuanos, 50 Vera Cruz, 50 Antwerp, 55 Barcelona, 384 68 Barranquilla, 16 Bremen, 10 Galatz, 79 Hamburg, 35 Havana, 35 Hiogo, 350 Messina, 60 Naples, 63 Rouen, 23 St. Petersburg, 50 Sydney, 139 Trieste, 30 Valencia, 32 Volo, 19 Yokohama, 50	Disinfectants— Calcutta, 1 t. 1 cs. £25 Madras, 12 c. 2 St. John's, N'd, 2 7 Dried Blood— Nantes, 50 t. £381 Farina— Ghent, 7 bgs. New York, 50 Guano— Motril, 300 t. £3,000 Malaga, 7 70 Gypsum— Montreal, 5 t. 7 c. £23 Iodine— Hamburg, 6 t. 6 c. £9,650 Iron Oxide— Nantes, 3 . £1 Lead Acetate— Havana, 5 c. £8 Lime— Lagos, 4 t. 15 c. £11 Magnesia— B. Ayres, 5 cs. Rosario, 1 Rotterdam, 5 cks. Corfu, 1 1 Magnesium Chloride— Nantes, 5 t. 2 c. £12 Magnesium Sulphate— Guayaquil, 16 cs. Rio de Janeiro, 45 kgs. Manure— Barbadoes, 25 t. £230 Havre, 50 1 c. 159
Nitric Acid— Rio de Janeiro, 1 c. £22 E. London, 6 cs. 16	Alum— Cape Town, 18 c. £6 Toronto, 14 t. 5 71 St. John's, N.B., 1 9 7 Lisbon, 3 15 Volo, 19 5 Dedeagatch, 1 9 7 Alexandria, 20 10 143 Bari, 1 2 3 q. 8 Melbourne, 1 10 10 Galatz, 4 2 3 30 Smyrna, 1 11 7 Trebizonde, 2 13 1 13	Ammonium Carbonate— Bordeaux, 1 t. £32 Seville, 4 c. 8 Yokohama, 1 15 51 Venice, 1 15 34 Rotterdam, 4 13 163 Hamburg, 10 18	Manure— Barbadoes, 25 t. £230 Havre, 50 1 c. 159
Oxalic Acid— Baltimore, 8 pks. £19 Melbourne, 1 t. 36	Ammonium Chloride— Barcelona, 1 t. £26 Syra, 7 Alexandria, 5 185 Trieste, 1 19 1 q. 73 Genoa, 1 4 49 Cabenda, 4 2 11 N. Orleans, 3 2 5 Piræus, 17 2 32 Bilbao, 4 8 Odessa, 1 37	Chemicals (otherwise undescribed) Ineboli, 5 c. £9 Trebizonde, 11 19 Alexandria, 2 t. 72 B. Ayres, 11 18 Antwerp, 1 36 New York, 5 159	Paint— Antwerp, 10 kgs. 10 dms. 6 bxs. Bolama, 2 cks. Bombay, 95 dms. 1 brl. Bonny, 23 B. Ayres, 8 C. C. Castle, 1 cs. Demerara, 90 Genoa, 12 5 Gibraltar, 15 Guayaquil, 72 Ibrail, 1 Jaffa, 2 Lagos, 130 Lisbon, 30 Madeira, 119 Malta, 1 Melbourne, 700 Mendoza, 4 New York, 2 S. John's, N'd, 40 8 Trinidad, 2 Vera Cruz, 28 Alexandretta, 6 Alexandria, 119 Beyroul, 40 Bremerhaven, 12 Calcutta, 160 Gd. Canary, 3 Havana, 50 9 Kingston, Jam., 300 Maranham, 4 Matanzas, 4 Mauritius, 568 Para, 15 20 Ponce, 1 Rouen, 1 Sanchez, 3 Santigo de Cuba, 3 Yokohama, 140
Phosphoric Acid— New York, 25 cs. £115	Ammonium Sulphate— Las Palmas, 30 t. 11 c. 2 q. £440 Gd. Canary, 1 15 New York, 25 16 373 Tagal, Spain, 53 6 746 Valencia, 10 142	China Clay— Bombay, 136 t. Boston, 879 16 c. Piræus, 15 10 Chloride of Lime— La Plata, 10 c. £6 Citric Acid— Odessa, 2 c. £14	Painters' Colours— Baltimore, 100 cks. Belize, 8 1 cs. Constantinople, 400 kgs. 1 brl. Curacao, 25 Halifax, 157 13 Havana, 5 Malta, 280 Mendoza, 27 M. Video, 10 19 N. Orleans, 531 2 New York, 6 100 Para, 17
Phosphorus— Sydney, 10 cs. £101 Auckland, 1 c. 11 Madeira, 12	Asbestos— Rosario, 1 cs. Lisbon, 1 bx. Para, 2	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potash— Otago, 8 c. £20	Asbestos— Rosario, 1 cs. Lisbon, 1 bx. Para, 2	Chloride of Lime— La Plata, 10 c. £6 Citric Acid— Odessa, 2 c. £14	
Potash Crystals— Dunedin, 6 cks. £65 Canterbury, 5 c. 14	Bleaching Powder— Ancona, 19 cks. 27 brls. Boston, 710 50 bxs. Chicago, 39 192 New York, 185 Philadelphia, 29 San Sebastian, 10 Vera Cruz, 10 Baltimore, 76 Dunkirk, 18 Genoa, 74 19 Habana, 40 Havana, 20 Montreal, 30 Naples, 56 16 Old Calabar, 49 Rouen, 14 Venice, 11	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potash Salts— Auckland, 11 t. 7 c. £1,653 Delagoa Bay, 5 966	Boracic Acid— Genoa, 1 t. £34 Boston, 2 3 c. 3 q. 64	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Bichromate— Canterbury, 2 c. £3	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Bromide— Calcutta, 1 c. £11	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Chlorate— Bombay, 1 t. 10 c. £79 Kurrachee, 1 ck. 5 Riga, 4 kgs. 13 Auckland, 6 20	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Cyanide— Normanton, 1 t. 16 c. £227	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Iodide— Melbourne, 1 cs. £18	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Potassium Prussiate— Sydney, 10 c. £50 Natal, 1 kg. 5	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Salicylic Acid— Adelaide, 2 c. £29	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Saltpetre— Bombay, 10 c. £12 Melbourne, 2 t. 45 Sydney, 10 11 B. Ayres, 10 12 Bahia, 3 5 Adelaide, 1 10 Rio de Janeiro, 3 3 Lisbon, 2 4 Canterbury, 10 11 Brisbane, 5 6	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sheep Dip— Adelaide, 200 cs. £550 Wellington, 24 cks. 109 Brisbane, 6 t. 1 c. 120 Cape Town, 1 3 60 Geelong, 300 cs. 825	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sodium Bicarbonate— Rockhampton, 5 t. £33 Brisbane, 1 7	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sodium Borate— Rio de Janeiro, 4 c. £6	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sodium Sulphide— Oamaru, 2 t. 2 c. £31	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Strontium Nitrate— Bombay, 10 cs. £36 Calcutta, 1 t. 14 c. 56	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Strychnine— Rockhampton, 2 c. £56	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sulphur— Natal, 1 t. £8 Melbourne, 20 190 Cape Town, 24 cks. 21 Algoa Bay, 4 t. 5 c. 39 Fremantle, 3 21	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sulphuric Acid— Aden, 10 cs. £10 E. London, 15 c. 7 Colombo, 4 t. 4 10 cs. 38	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Sulphur Ether— Melbourne, 1 cs. £5	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	
Superphosphate— Bombay, 20 t. £90	Borax— Hamburg, 2 t. 2 c. £40 Stettin, 3 3 60 Trieste, 1 22 Alexandria, 18 20 Corunna, 11 12 Seville, 1 19 1 41 Namur, 5 112	Coal Products— Alizarine Oil Lisbon, 2 cks. Aniline Colours Barcelona, 1 kg. Boston, 1 Buffalo, 12 brls. Aniline Salts Boston, 18 cs. Anthracene Rotterdam, 100 brls. 22 cks. Naphthol New York, 3 cks. 1 cs. Pitch Sherbro, 10 brls. Antwerp, 1,493 t. Tar Belize, 15 dms. Galatz, 40 brls. Kustendjie, 20 Lagos, 10 Sherbro, 10 Sierra Leone, 15 Kustendjie, 10 Tar Oil Seville, 2 brls.	

Ponce,	225		30 dms
Toronto,			
Valleyfield,	1		
Calcutta,	2		
Honolulu,		4	
Humaco,	6		
Iquitos,	2		
Las Palmas,	115		
Lisbon,	1		
Manaos,	2		
Maranhão,		15	
Mauritius,	63		
Monrovia, 5 tins,			
Odessa,	30		
Old Calabar,		3	
Oporto,	49		
Pt. Said,	2	3 4	
Porto Plata,	4		
Sagua la Grande,		1 1 ice.	
St. Petersburg,	40		
Stettin,	11		
Stockholm,	10		
Volo,	3		

Paraffin Wax—

Jaffa, 11 cs.

Phosphorus—

Vera Cruz, 12 cs.

Potash—

B. Ayres, 1 t.

Potassium Bichromate—

Alexandretta, 1 t. 2 c.

Rio de Janeiro, 10

Smyrna, 16

Potassium Carbonate—

Chicago, 3 t.

Cienfuegos, 5 c. 1 q.

Potassium Chlorate—

Boston, 2 t. 10 c.

New York, 22 10

Hio, 26

Shanghai, 29 10

Antwerp, 1

St. Petersburg, 19 5

Oporto, 15

B. Ayres, 2 10

Sydney, 10

Odessa, 37

Yokohama, 2 10

Corunna, 10

Potassium Prussiate—

Genoa, 1 t. 10 c.

Quicksilver—

Punta Arenas, 3 btl.

Rosin—

Hamburg, 10 btl.

Salt—

Antwerp, 221 t.

Baltimore, 300

Bandholm, 160

Boston, 880

Brass, 25

Brisbane, 250

Calcutta, 8,991

Chicago, 50

Dunedin, 50

Demerara, 100 5 c.

Degama, 25

E. London, 8 18

Ghent, 85

Iceland, 248

Loanda, 10

Melbourne, 6

Montreal, 1,233 16

Newport News, 500

N'Kombi, 9

Old Calabar, 40 2

Oreba, 220

Paspebiac, 508

Quebec, 830

Rotterdam, 316

St. John's, Nfld., 6

Trinidad, 136 17

Adelaide, 1 10

Akassa, 18

Cameroon, 348 15

Faroe Islands, 140

Hamburg, 112 5

Miramichi, 300

Monrovia, 27 10

Rangoon, 1,520

Reykjavik, 103

St. Petersburg, 101

Sydney, 180 cs.

Salt Cake—

Antwerp, 10 t.

New York, 125 15 c. 3 q.

Saltpetre—

Rio de Janeiro, 2 t. 6 c. 2 q.

Syra, 2 15

Bilbao, 1 10

Bahia, 10 2

Carthagena, N.G., 5 6

Sheep Dip—

M. Video, 1 t.

Wellington, N.Z., 4

B. Ayres, 400 dms.

Odessa, 7 10 c. 2 q.

Siag—

Boston, 50 t.

New York, 50

Soap—

Algoa Bay, 1,170 bxs. 152 cs.

Antwerp, 300

Banoka, 40

Batanga, 50

Bereby, 40

Bombay, 710 35

Boston, 4 cks.

B. Ayres, 1

Calcutta, 305 250 bdl.

Cameroon, 50

C. C. Castle, 4

Cape Town, 2,700 100

Christiania, 85

Constantinople, 100

Demerara, 1,175

E. London, 1,412 75

Gaboos, 40

Genoa, 25

Ghent, 40

Havre, 100 480

Honolulu, 125

Johannesburg, 98

Kingston, Jam, 400

Lisbon, 10

Mandiji, 25

M'Pongive, 60

Mosel Bay, 600

New York, 30 3 15 cks.

N'Kombi, 20

Para, 200 2

Pernambuco, 1

Nort Natal, 50

Rio de Janeiro, 1

Savannah la Mar, 160

St. John's, Nfld., 527

St. Kitts, 400

St. Lucia, 100

Singapore, 2,050 50 kgs.

Teneriffe, 464

Trinidad, 1,500

Brown's Town, 75

Canada, 1

Falmouth, 125

Gibraltar, 382

Havana, 1

Honolulu, 108

Landana, 50

Las Palmas, 112

Leghorn, 2

Loanga, 25 8

Old Calabar, 8

Rotterdam, 300

Shanghai, 571

Toronto, 750

Soda—

Norfolk, 7 cks.

Soda Alkali—

Barcelona, 190 btl.

Callao, 35

Leghorn, 97

Montreal, 35

Odessa, 50

River Plate, 17

Soda Ash—

Antwerp, 600 bgs.

Baltimore, 85 cks. 1,351 126 tcs.

Barcelona, 32

Batavia, 47 btl.

Boston, 233 tcs. 95 1,880

Demerara, 8

Hamburg, 50

Jaffa, 50

Lisbon, 17

Montreal, 167

N. York 233 tcs. 110 4,852

Philadelphia, 32

Piræus, 50

Smyrna, 320

Vigo, 6

Auckland, 22

B. Ayres, 20

Cadiz, 4

Calcutta, 100

Cape Town, 30 kgs.

Corfu, 150 btl.

Dunedin, 10

Ghent, 10 67

Havana, 3

Leghorn, 100

Nagasaki, 100

Porto Alegre, 50

Rio de Janeiro, 200 150

San Francisco, 100 tcs.

Santa Maura, 6 btl.

Wellington, 20

Yokohama, 100

Soda Crystals—

Boston, 196 btl.

Cape Town, 25

Constantinople, 50

Montreal, 200 15 dms.

New York, 280 cks.

Philadelphia, 1,001

Calcutta, 20

Malta, 54

Old Calabar, 40

Sodium Acetate—

Naples, 8 cks.

Sodium Bichromate—

Boston, 12 btl.

Tampico, 20

Sodium Bicarbonate—

Boston, 240 kgs.

Constantinople, 40 20 btl.

Santander, 20

Seville, 160 5

Adelaide, 150

Auckland, 87

Barcelona, 195

Bluefields, 8 cks.

Bombay, 60

Bordeaux, 70

Calcutta, 300

Christchurch, 100

Christchurch, 20

Dunedin, 130

Hamburg, 20

Havana, 25

Havre, 60

Lisbon, 40

Lyttelton, 40

Malaga, 20 10 btl.

Marseilles, 39

Montreal, 250

Nagasaki, 200

Newcastle, 40

Odessa, 30

Rotterdam, 20

St. Stephens, N.B., 100 kgs.

Sydney, 270

Toronto, 50 10 cks.

Valencia, 10

Vigo, 8

Wellington, 180

Sodium Bichromate—

New Orleans, 1 ck.

Sodium Carbonate—

New York, 140 btl.

Sodium Chlorate—

Antwerp, 60 kgs.

Hamburg, 59 2 cks.

New York, 60

Rotterdam, 10

Vera Cruz, 4

Sodium Phosphate—

Pasages, 4 cks.

Sodium Prussiate—

Naples, 7 cks.

Sodium Silicate—

Melbourne, 38 btl.

Naples, 12

Seville, 12

Corunna, 8

Sodium Sulphate—

Boston, 30 kgs.

Strontia—

Bremen, 150 t. 11 c.

Sulphur—

Trinidad, 5 t. 2 c.

Boston, 275 8

Pacasmayo, 1 19 1 q.

Superphosphate—

Gd. Canary, 6 t.

Valencia, 25

Las Palmas, 4

Turpentine—

Salonica, 3 btl.

Bonny, 8 dms.

Las Palmas, 4

Varnish—

Malta, 4 cks.

Rosario, 4 cs.

Bombay, 10 dms.

Havana, 1

Rouen, 24

St. John's, Nfld., 3

Vermillion—

Calcutta, 4 cks.

Whiting—

Trieste, 25 btl.

Valparaiso, 50

Zinc Chloride—

Bordeaux, 12 t.

Bombay, 2 8 c.

Montreal, 8 3 q.

Zinc Oxide—

Nantes, 40 cks.

MANCHESTER.

Week ending June 28th.

Alkali—

Barcelona, 500 kgs.

Rouen, 4 btl.

Alum—

Rio de Janeiro, 1 ck.

Ammonia—

Rio de Janeiro, 1 ck.

Ammonium Sulphate—

Valencia, 439 bgs.

Aniline Oil—

Rouen, 5 dms.

Bleaching Powder—

Rio de Janeiro, 4 cs.

Chemicals (otherwise undescribed)

Antwerp, 2 ck.

Hamburg,	386	
Rotterdam,	1,079	
Stettin,	561	
Stockholm,	104	
Stavanger,	45	
Venice,	34	
Creosote—		
Danzig,	100 cks.	
Trieste,	10	
Dyestuffs (otherwise undescribed)		
Antwerp,	1 ck.	
Christiania,	10 bls.	
Reval,	1	
S. Petersburg,	2	5 cs.
Linseed Oil—		
Antwerp,	17 c.	
Alexandria,	79	
Bergen,	150	
Christiansand,	20	
Christiania,	704	
Copenhagen,	3	
Drontheim,	157	
Gothenburg,	158	
Hamburg,	224	
Stavanger,	83	
Trieste,	202	
Venice,	3	
Mineral White—		
Harlingen,	200 bls.	
Paint—		
Venice,	12 cks.	
Painters' Colours—		
Antwerp,	18 cks. 1 cs.	
Alexandria,	164 pks.	
Amsterdam,	1	
Abo,	5	3 dms.
Bordeaux,	17	
Bergen,	1	172
Christiansand,	79 kgs.	
Christiania,	4 cks.	40 25
Dunkirk,	2	1 cs.
Drontheim,	12	183
Fiume,	7	
Gothenburg,	4	50
Jersey,	2	
Hamburg,	11	4
Harlingen,	89	1
Konigsberg,	89	
Norroping,	10	
New York,	301	
Odessa,	167	
Riga,	50	
Rotterdam,	1	
Stettin,	8	
St. Petersburg,	100	35
Trieste,	4	
Pitch—		
Antwerp,	441 t.	
Hamburg,	1 ck.	
Slag—		
Christiania,	2 t.	
Gothenburg,	100	
Stettin,	344	
Venice,	500	
Soap—		
Bergen,	10 bls.	
Copenhagen,	10 cs.	
Rotterdam,	20	
Tallow—		
Alexandria,	34 cks.	
Rotterdam,	39	
Tar—		
Amsterdam,	11 cks.	
Bremen,	3	
Christiania,	1	
Dunkirk,	1	
Drontheim,	5	
Tar Salts—		
Danzig,	60 bgs.	
Turpentine—		
Alexandria,	50 dms.	
Venice,	13 cs. 7 cks.	
Yarnish—		
Alexandria,	1 cs.	
Copenhagen,	7 bls.	
Drontheim,	2 cks.	
Gothenburg,	3	
Hamburg,	1	
Stockholm,	1	
Whiting—		
Antwerp,	3 cks.	

GLASGOW.

Week ending June 28th.

Ammonium Sulphate—		
W. Indies,	210 t.	5½ c. £9,938
Demerara,	8	5½ 109
Jamaica,	10	1¼ £129. 18s.
Demerara,		£1,345

Bleaching Powder—		
New York,	7 t.	8 c. £58
Calcutta,	9	90
Chili,	2	£23. 10s.
Cape Town,	3	19 £438
Boracic Acid—		
Rouen,	19½ c.	£40
Borax—		
Oporto,	1 t.	1¼ c. £23. 10s.
Canada,	3	2 74 15
Castor Oil—		
Cape Town,		£38
Caustic Soda—		
Philippines,	8 t.	14½ c. £75
Coal Products—		
Creosote Oil		
Christiania,	50 cks.	£23
Naphtha		
Rouen,	4 t.	16½ c. £50
Hamburg,	7 dms.	25
Naphthaline		
Duisberg,	160 t.	
Pitch		
Bordeaux,	106 t.	4 c. £110
Canada,	119	10 136
Boston,	71	13½ 129
Amsterdam,	045	12½ 920
Duisberg,	144	288
New York,	132	5½ 199
Tar		
Australia,		£42. 10s.
New York,	11 t.	18 c. £25
Gothenburg,	12	5½ 34
Madras,	50	2 204
Calcutta,	215	3 474
Straits		
Boston,	24	10 179
Christiania,	40	brls. 18
Tar Oil		
Hamburg,	4	dms. £6
Dried Blood—		
Rouen,	12 t.	7½ c. £90
Dyestuffs—		
Logwood		
Boston,	2 t.	9½ c. £35
Canada,	5	2 44
Sumac Extract		
Quebec,	1 t.	7¼ c. £24. 11s.
Farina—		
Calcutta,	11 t.	7 c. £120
Guano—		
W. Indies,	50 t.	½ c. £600
Linseed Oil—		
Mexico,	250	glns. £27. 10s.
Trinidad,	640	54
Cape Town,	1 t.	5½ c. 28
Canada,	21	14½ 468
Manganese Oxide—		
New York,	10 t.	£95
Manure—		
W. Indies,	50 t.	£525
Jamaica,	15	1 c. 160
Demerara,	30	390
Trinidad,	162	6 1,405
Ochre—		
New York,	3 t.	12 c. £53
Paint—		
Demerara,	3 t.	11½ c. £50
Australia,	3	19½ 61
New York,	40	7½ 788
Colombo,	2	7 43
Straits,	1	12 30
Jamaica,	3	½ 56
Bombay,	3	30
Shanghai,	1	3 62
Chili,	6	120
Demerara,		33
Cape Town,		60
Painters' Colours—		
Calcutta,	7 t.	10 c. £121
W. Indies,		23
Mexico,	3	12 £57. 10s.
Hong Kong,	3	5 £42
Auckland,		48
Paraffin Wax—		
Bilbao,	1 t.	¼ c. £32
Amsterdam,	100	bxs. 205
Japan,	17 t.	12½ 390
Rouen,	2	3¼ 58
Cape Town,	5	7½ 160
Phosphoric Acid—		
Rouen,	1 t.	13½ c. £55
Potash Salts—		
Cape Town,	18 t.	16 c. £1,971
Potassium Bichromate—		
New York,	29 t.	5½ c. £1,162
Gothenburg,	4	11½ 165
Boston,	9	15½ 388
Japan,		200
Rouen,	70	6½ 2,714

Potassium Prussiate—		
Rouen,	5 t.	7 c. £389
Sheep Dip—		
Auckland,	3,150	glns. £374
Slag—		
Amsterdam,	270	t.
Soap—		
Bombay,	2 t.	2½ c. £23
Sodium Bichromate—		
New York,	12 t.	15½ c. £417
Rouen,	25	12 502
Sodium Silicate—		
Australia,	5	t. £30
Sulphuric Acid—		
Philippines,		£25
Superphosphates—		
Demerara,	45	t. 4 c. £101
Tallow—		
Manila,	1 t.	1½ c. £30
Rotterdam,	13	17 404
Turpentine—		
Straits,	275	glns. £26
Mexico,	188	24
Varnish—		
Bilbao,		9½ c. £112
Christiania,	2	brls. 3
White Lead—		
Australia,	15	t. 4 c. £307
Colombo,	2	¼ 34
Cape Town,	2	5 46
Auckland,	17	1½ 284

TYNE.

Week ending June 23rd.

Alkali—		
St. Petersburg,	15	cks. 15
Rotterdam,	12	t. 6 c.
Lisbon,	4	cks. 4
Ammonium Chloride—		
St. Petersburg,	24	t. 19 c.
Ammonium Sulphate—		
Odense,	5	t. 3 c.
Rotterdam,	20	3 c.
Antimony—		
Antwerp,	6	t.
St. Petersburg,	5	6 c.
Christiania,	4	10
Rotterdam,		
Arsenic—		
Venice,	7	t. 8 c.
Copenhagen,	1	5
Barium Binocide—		
Hamburg,	8	c.
Barytes Carbonate—		
Riga,	77	t. 1 c.
Rotterdam,	100	
Bleaching Powder—		
Santos,	28	t. 8 c.
Antwerp,	4	19
Venice,	9	18
Barcelona,	5	12
Konigsberg,	5	
St. Petersburg,	237	10 15 cks.
Horsens,	1	10
Rotterdam,	13	7
Seville,	9	19
Gothenburg,	26	1
Copenhagen,	19	19
Danzig,	5	9
Newfairwater,	15	1
Drontheim,	10	2
Lisbon,		33
Caustic Soda—		
Antwerp,	15	t. 5 c.
Hamburg,	20	15
Venice,	39	3
Barcelona,	13	1
Riga,	10	
Seville,	35	15
Constantinople,	5	18
Odessa,	16	18
Barcelona,	43	6
Newfairwater,	14	10
Genoa,	50	12
Gothenburg,	4	18
Philadelphia,	72	10
Copperas—		
Randers,	1	t. 1 c.
Iron Oxide—		
Hamburg,	1	t.
Litharge—		
Antwerp,		5 c.
Copenhagen,		6
Danzig,	1	t. 2
Magnesia—		
Barcelona,	6	t. 10 c.
Hamburg,		14
Constantinople,		2
St. Petersburg,	1	10

Manure—		
Barcelona,	20	t. 5 c.
Naphthaline—		
Riga,	25	t. 13 c.
Oxalic Acid—		
Barcelona,	1	t. 2 c.
Reval,		1
Paint—		
Antwerp,		2 c.
Riga,		6
Phosphorus—		
Barcelona,	2	t. 17 c.
Potassium Chlorate—		
St. Petersburg,	2	t. 10 c.
Rosin Oil—		
Hamburg,		14 c.
Slag—		
Rotterdam,	157	t.
Soda—		
Antwerp,		5 t.
Hamburg,	10	4 c.
Venice,	6	7
Sundsvall,	54	2
Christiania,	9	15
Rotterdam,	72	12
Archangel,	1	1
Smyrna,	7	10
Soda Ash—		
Kalmar,	50	t. 8 c.
Venice,	10	1
Konigsberg,	91	1
Odessa,	5	6
Newfairwater,	9	19
Bergen,	5	
Lisbon,	59	cks.
Gothenburg,	115	3
Sodium Hyposulphite—		
Barcelona,	1	t. 18 c.
Sodium Sulphate—		
St. Petersburg,	10	t. 3 c.
Sulphur—		
Copenhagen,	20	t.
Gothenburg,	43	
Superphosphate—		
Reval,	200	t. 2 c.
Lisbon,	631	2
Tar—		
Archangel,	3	t. 15 c.
Reval,	6	7
Varnish—		
Kiel,	1	t. 12 c.
White Lead—		
Riga,	2	t. 11 c.
Archangel,	1	1
Copenhagen,	1	6
Lisbon,	18	cks.
Zinc White—		
Archangel,		13 c.

GOOLE.

Week ending June 20th.

Chemicals (otherwise undescribed)		
Hamburg,	24	cks.
Rotterdam,	52	
Coal Products (otherwise undes.)—		
Antwerp,	10	dms
Boulogne,	1	ck. 2 cs.
Ghent,	1	13
Hamburg,	1	
Rotterdam,	63	
Rouen,	6	
Dyestuffs (otherwise undescribed)		
Ghent,	1	ck.
Hamburg,	3	
Manure—		
Boulogne,	61	bgs.
Calais,		4 cks.
Rotterdam,	494	
Pitch—		
Antwerp,	383	t.
Pyrites—		
Rotterdam,	231	t.

GRIMSBY.

Week ending June 23rd.

Chemicals (otherwise undescribed)		
Antwerp,	1	ck.
Hamburg,	20	cs.
Coal Products (otherwise undes.)		
Dieppe,	22	brls. 10s.

PRICES CURRENT.

WEDNESDAY, JULY 4th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	10/6
" Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 3/4
Nitrous	"	0	0 1 3/4
Oxalic	nett	0	0 3 3/4
Phosphoric, 1750°	"	0	1 0
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 1
Tartaric	"	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferic	"	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	"	0	0 2 1/4
" Carbonate	nett	0	0 3 3/4
" Muriate	per ton	24	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-
" Nitrate	per ton	44	0 0
" Phosphate	per lb.	0	0 10 3/4
" Sulphate (grey) London	per ton	14	0 0
" (grey) Hull	"	14	0 0
Aniline Oil (pure)	per lb.	0	0 5 1/2
Aniline Salt	"	0	0 5 1/4
Antimony	per ton	32	0 0
" (tartar emetic)	per lb.	0	0 9 1/4
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	75/-
Bleaching Powder, 35 %	nett	7	10 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	0 11 1/2
" 50/90	"	0	1 2 1/2
Carbolic Acid (crystallised 40°)	per lb.	0	0 6 1/4
" (crude 60°)	per gallon	0	1 9
Creosote (ordinary)	"	0	0 1 1/2
" (filtered for Lucigen light)	"	0	0 2 1/2
Crude Naphtha 30 % @ 120° C.	"	0	0 5 3/4
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	1	11 6
Solvent Naphtha, 90 % at 160°	per gallon	0	1 4 1/2
Lucigen and "Wells" Oils	"	0	0 2 1/2
Copper	per ton	38	15 0
" Sulphate	"	14	10 0
" Oxide (copper scales)	"	39	5 0
Glycerine (crude)	"	15	0 0
" (distilled S.G. 1250°)	"	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	4 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	10	7 6
" Litharge Flake (ex ship)	"	13	0 0
" Acetate (white)	"	26	0 0
" " brown)	"	16	0 0
" Carbonate (white lead) pure	"	20	0 0
" Nitrate	"	19	10 0

Lime, Acetate (brown)	per ton	5	17 6
" (grey)	"	10	5 0
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	10 0
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	"	17	15 0
" Borate	per cwt.	2	12 6
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 2
Naphtha (Wood), Solvent	"	0	3 7
" Miscible, 60° O.P.	"	0	4 2

Oils:—

Cotton-seed	per ton	21	0 0
Linseed	"	22	10 0
Petroleum, American	per gallon	0	0 5 1/4
Stearine	per ton	27	0 0
Phosphorus (yellow)	per lb.	0	2 2
" (red)	"	0	2 9
Potassium (metal)	per oz.	0	3 7
" Bichromate	per lb.	0	0 4 1/2
" Carbonate, 90% (ex ship)	per ton	16	15 0
" Chlorate	per lb.	0	0 7
" Cyanide, 98%	"	0	2 0
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
" (Caustic Potash) 75/80 %	"	20	0 0
" (Caustic Potash) 70/75 %	"	19	10 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	2 6
" Prussiate Yellow	per lb.	0	0 10 1/2
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	7 6
Silver (metal)	per oz.	0	2 4 1/4
" Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	17 6
" (Caustic Soda-ash) 48 %	"	4	2 6
" (Carb. Soda-ash) 48 %	"	4	0 0
" (Alkali) 58 %	"	3	15 0
" (Soda Crystals)	"	2	10 0
" Acetate (ex-ship)	"	14	15 0
" Arseniate, 45 %	"	11	0 0
" Chlorate	per lb.	0	0 8 1/4
" Borate (Borax)	net, per ton	22	0 0
" Bichromate	per lb.	0	0 3 3/4
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 tons lots	10	15 0
" (74 % Caustic Soda)	"	9	15 0
" (70 % Caustic Soda)	"	8	15 0
" (60 % Caustic Soda)	"	7	15 0
" (60 % Caustic Soda, cream) (f.o.b.)	"	7	12 6
" Bicarbonate	"	5	12 6
" Hyposulphite	"	5	10 0
" Manganate, 30%	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9 6
" Nitrite, 98 %	per ton	29	10 0
" Phosphate	"	15	0 0
" Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)	"	4	5 0
" Stannate, 40 %	per cwt.	3	0 0
" Sulphate (Salt-cake)	per ton	0	17 6
" (Glauber's Salts)	"	1	5 0
" Sulphide	"	8	10 0
" Sulphite	"	5	12 6
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7 1/4
" Barium, 95 %	"	0	0 5
" Potassium	"	0	0 7 1/2
Sulphur (Flowers)	per ton	7	10 0
" (Roll Brimstone)	"	5	12 6
" Brimstone: Best Quality	"	3	15 0
Superphosphate of Lime (26%)	"	2	7 6
Tallow	"	25	0 0
Tin Crystals	per lb.	0	0 6
English Ingots	"	72	10 0
Zinc (Spelter)	per ton	15	17 6
" Chloride (solution, 96° Tw.)	"	5	10

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Notices.

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Readers are invited to forward items of intelligence, or cuttings from local newspapers, of interest to the trades concerned.

Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE FOOD ADULTERATION INQUIRY.

THE Committee appointed to re-investigate the Food Adulteration Acts has now got fairly to work, and the proceedings promise to be very interesting. The Local Government Board returns show that even though the Food and Drugs Act is a dead letter, even in such large towns as Derby, Sunderland, South Shields, Oxford, and other places, still the Act has been applied to an extent which has led to the suppression of poisonous edibles at all events. So that the public have benefited to the extent that whereas they were often poisoned by adulteration, they are now only cheated. The latter condition of affairs, however, even if a marked advance does not afford substantial solace to those who have been victimised by purchasing fine French coffee composed of 90% chicory.

So far, the biggest nut the Committee have to crack seems to be that ancient bugbear, the standards question. The article for which a standard is most wanted, on account of its being subjected to more adulteration than almost any other edible—namely, milk—is, however, in itself one of the strongest arguments against the adoption of an arbitrary standard. Unfortunately, it is very difficult to distinguish scientifically between watery milk, naturally of poor quality from a cow, and milk which has been unnaturally watered. Under these circumstances, it is apparent that a high standard would have a prejudicial effect on trade by excluding a lot of really good ordinary milk, while a lower standard including such milk, would not always prevent the addition of water to the product of the average cow. No doubt some people get much better milk than others because milks differ, and where, for instance, two milk purveyors both find it necessary on occasion to increase their supply by adding water, and do so by the addition of identically the same quantity of water, the milk of one may be rendered decidedly poor, and the other still be good milk. It would, therefore, seem desirable that a standard should be fixed upon which would ensure a supply of milk for the public good enough for all culinary uses and ordinary direct consumption. Milk below the standard could then be condemned, while rich milk could be diluted to the standard, or sold at an enhanced price to those who wish for extra good milk. The whole question, however, is admittedly a difficult one, for enlightenment upon which the Committee is especially looked to. There are two other points, however, which have a lot to do with the present flourishing condition of adulteration, and on which the Committee ought to speak decisively. We refer to the inadequacy of the majority of fines inflicted by magistrates, and the possible abuse of the warranty system. In the case of the former, magistrates do not seem to comprehend that a fine should be sufficiently large to cause a trader who is making extra profit by adulteration to think the game hardly worth the candle. As it is, the paltriness of the fines, makes adul-

teration a lucrative speculation, and so long as traders, can get their extra profit so cheaply, they will be only too glad to pay such fines as regularly as their rent.

THE COAL TRADE.

Things look rather better for the future of the coal trade, and the outcome of the meeting of the Conciliation Board, to be held next Thursday, may well be impatiently waited for. There is justice in the demand that if the minimum wage is to be fixed, so must the maximum also, and the miners seem generally to be disposed to agree to the present propositions. By submitting to a reduction from now to January 1st, 1896, they are able to have their minimum wage fixed, and they have the advantage of getting a better wage during the seven months from January to August, 1896, if the coal trade picks up. It is certain that in the absence of some such arrangement as is now proposed, the chances of an increased wage are very small, while on the other hand wages might dwindle to something less than the minimum at present suggested. The terms which have been drawn up, moreover, appear so reasonable to the miners now on strike in Scotland that they seemingly would be willing to come to somewhat similar terms. The masters, however, are not so much in favour of following the lead of the English coalowners. Nevertheless, this does not alter the fact that if the miners here refuse to conform to the present terms they will be refusing what their Scotch fellow-workers evidently would be glad to get, and masters here are also willing to agree to. It would, we should think, be as satisfactory to the miners themselves to know that stoppages and disputes over wages were disposed of for two years as it undoubtedly would be to those whose financial success in business is so largely dependent upon a regular supply of fuel at a reasonable figure.

THE VALUE OF HIGH STRENGTH CAUSTIC FOR SOAP-MAKING.

[SPECIALLY CONTRIBUTED.]

IN time past, it has been shown in these columns how important the use of high-strength caustic soda is to papermakers for the preparation of their leys. In the recovery of soda by the Porion, the wisdom of using pure caustic is still further emphasised, and many of the remarks that follow may be studied with equal edification by paper-makers as well as soap-makers.

High strength caustic is comparatively plentiful nowadays, but the quality of the article produced by Messrs. J. Crosfield and Sons, specially for soap-makers, lead us some time since to give an account of how they manufacture their 77% caustic soda. This firm, however, have now gone further, and are making and putting up in drums a very strong (110° Tw.) caustic solution or ley of a high degree of purity. The solution is by reason of its strength, nearly solid, but is much more easily handled in the soap works than solid caustic, to say nothing of the saving in labour and steam, owing to the necessity of dissolving the solid caustic being obviated. Consequently, it should be borne in mind that where the increased cost of using high-grade caustic is considered a formidable item, this cost is in a measure compensated for by the use of a ready-prepared concentrated ley. And this, apart from the other economies we are about to deal with, as being effected by using high-strength caustic. In judging a caustic soda from a soap-maker's or paper-maker's aspect, it is incorrect to base the value of a caustic, as is so often done, on the percentage of alkali (Na_2O) contained therein. In the first place, all caustic soda, as will be seen from the analyses which follow, contains sodium carbonate, the percentage of which is considerably greater in caustic soda of low strength than in pure 77% caustic; for example, there is sometimes as much as 4 per cent. of Na_2O in 70% caustic as sodium carbonate, and should of course be deducted from 70%, making 66%, before comparing the causticity of this caustic with 77%, which only contains 1 per cent. of Na_2O as carbonate. A further examination of the salts or impurities which must necessarily accompany a caustic of low strength will prove that they are not mere diluents, but that they adversely influence most processes in which caustic soda is used in the manufacture of soap.

COMPOSITION OF LOW AND HIGH STRENGTH CAUSTIC SODA.

	60% Caustic	70% Caustic	77% Caustic
Sodium hydrate	67-71	85-87	97 per cent.
" carbonate	5-8 per cent.	3-4 per cent.	1-4 per cent.
" aluminate	In some samples under $\frac{1}{2}$ per cent. in others over 1 per cent		
" silicate			
" sulphide			
" sulphite			
" chloride	7-15 per cent.	4-6 per cent.	5 per cent.
" sulphate	1-8 per cent.-5 per cent.	1-4 per cent.	3 per cent.
" arseniate	Found as much as 75 per cent.		
Insoluble	0-1-0-3 per cent.		
			Traces.

Of the impurities given in the analysis, the first five alkaline salts, viz., sodium carbonate, aluminate, silicate, sulphide, and sulphite, will be determined as alkali in the ordinary course of analysis, and, by custom of the trade, calculated as Na_2O . Care should be taken, therefore to determine these compounds in the caustic soda under consideration, and to deduct the amount of Na_2O contained in these salts from the total percentage of Na_2O before comparing the values of different strengths of caustic soda. The soap-maker must furthermore bear in mind that these substances are not only useless in the soap pan, but that they require to be neutralised when the spent leys are treated for the purpose of recovering the glycerine, and that he has not only to bear the cost of the acid for neutralising these alkaline salts, but that he further dilutes his spent leys thereby with salt and water. The extra cost resulting from having to neutralise these impurities of the caustic is about equal to three quarters of the value of alkali contained in the caustic soda; thus, a 70 per cent. caustic soda containing 4 per cent. of Na_2O as carbonate of soda, for the above reasons, must only be considered 70-(4 + $\frac{3}{4}$) of 4) or 63°. Should the caustic soda contain aluminate of soda in considerable quantity, which is often the case, even this correction is not sufficient, for, when a caustic containing aluminate is titrated hot, with methylorange, instead of with the now somewhat obsolete indicator litmus, the final point is not reached, as generally supposed, when the whole of the free alkali present is saturated with acid, but only after the soda in combination with alumina is all saturated, and the precipitated alumina is re-dissolved. A 70 per cent. caustic soda, containing, say, 2 per cent. of alumina, would therefore show on titration with methylorange 3-2 per cent. of Na_2O too much, an amount which should be deducted, in addition to the amount of Na_2O found in the other alkali salts, from the total alkalinity. Thus:—

In 2 per cent. Al_2O_3 combined caustic soda	
($\text{Al}_2\text{O}_3 \cdot \text{Na}_2\text{O}$)	= 79 percent. Na_2O
Equivalent Na_2O to dissolve 2 per cent.	
Al_2O_3	= 2-37 "
Total	3-16 "

Therefore, in the alkalinity of the 70 per cent. caustic spoken of above, supposing it contained, which is not infrequently the case, 2 per cent. of aluminium oxide, a further reduction of 3-16 will have to be made, bringing the alkalinity of the 70% for comparison with 77% down to 63-3-16=59-9°.

The soap-maker has further to take into consideration that all but 77 per cent. caustic soda contains sulphide, or sulphite of soda, or both, and that these compounds are very objectionable in the recovery process of glycerine, as they are by no means easy to eliminate. Moreover, these impurities may be the cause of decolorisation and bad smell of the soap, and is furthermore apt to cause the store tanks for caustic liquor to leak. Before leaving the subject of the impurities and their influence, a word or two may well be said about the presence of arsenic as arseniate of soda in caustic. The advantages of adding arsenic when a pot of caustic has reached the critical stage of finishing, are so great as to cause makers to be strongly in favour of using it. In the case of caustic intended for soap-makers, however, its use is objectionable, as it is from the caustic that it finds its way into the glycerine. Since the practice of recovering this product is again growing in favour owing to the outlet for glycerine in the manufacture of explosives, it will be apparent that the presence of arseniates in caustic soda becomes a matter of increasing importance. And this for two very cogent reasons. The presence of arsenic renders glycerine quite unfit for dynamite making, and also when once present the task of removing it is tedious and troublesome to a degree. So far, the relative values of different qualities of caustic soda lie fairly within the bounds of calculation, but there are further disadvantages attached to an impure caustic soda, which it is difficult to estimate in £. s. d., and which are due to the presence of other impurities, some of which we will now enumerate.

I. The influence of salt in caustic ley in the soap pan is a decided disadvantage, for it is well known that even a small proportion of salts exerts a marked retarding influence on the saponification of fats; thereby either causing delay and consequent waste of

steam and labour, or a faulty soap, *i.e.*, one in which un-saponified fat remains, imparting to the soap a bad smell by becoming rancid. The salt, sulphate, and other impurities modify the texture of genuine soaps, and increase their liability to crack and effloresce.

II. It is evident that variations in the quality and quantity of impurities will interfere with the routine of work of the soap factory wherever the strength of caustic soda is gauged by the specific gravity (by the Twaddle glass). It is clear that the density of a liquor will only prove a reliable guide when the product, on which the strength of the liquor depends, is of constant composition.

III. The impurities find their way into the spent ley and increase the cost of its evaporation by impeding it, a fact which is more serious than might at first sight appear. To show this, we cannot do better than quote from the admirable report which Messrs. Cross and Bevan have published upon the utility of caustic sodas, and in which the use of 77° caustic is so strongly recommended. They say: "We will take 100 parts of tallow as requiring 17 parts of a 70° caustic for saponification and as yielding 5 parts glycerine. The 17 parts of caustic, containing, say, 10 per cent. of salts, will furnish 1.7 per cent. as saline impurity to the spent ley, this amount representing 33 per cent. of the weight of the anhydrous glycerine."

IV. By using pure caustic ley of high concentration (a ley which cannot, for obvious reasons, be obtained from low-test caustic soda) the process of soap-making can not only be very much simplified and the efficiency of the soap plant increased, and economies in labour, etc., realised, but the spent ley separated at a much higher gravity, with less salt than by the older method.

From what we have said, it will be evident that many points have to be considered before a reliable comparison can be made between the cost of a high and a low test caustic soda. The points mainly to be considered are, in short, the following:—

1. The percentage of Na_2O , after deducting from the total alkali the Na_2O present as sodium carbonate, aluminate, silicate, sulphide, and sulphite.
2. The cost of acid used for neutralizing the alkaline salts just named.
3. The cost of evaporating the water contained in the acid used for neutralizing and dealing with the salts resulting in the process of neutralization.
4. The cost due to less efficiency of plant, waste of labour, and steam on account of the impossibility to use concentrated caustic leys made from low-test caustic soda.
5. The cost arising from the successive removals of spent ley and additions of fresh weak liquor.
6. The cost arising from a larger quantity of water having to be used in the soap pan, and consequently a larger quantity of salt being required for "cutting" the soap paste.
7. The retarding action of impurities on the saponification of fats.
8. The impossibility of relying on the specific gravity of caustic liquor as a guide in soap making owing to the varying quantity of impurities.
9. The additional cost per unit of handling a liquor of lower concentration.
10. The deteriorating effect on soap by impurities (modification of texture, increasing liability of cracking, efflorescence, rancidity, and decolorisation).
11. The cost of carriage will be larger in proportion as the quantity of useful Na_2O is smaller.

From this it will be easy to see how, and what advantage can be derived from the use of concentrated high-strength leys. There is of course the question of being able to get them. On this point the physical properties of sodium carbonate help us. With a ley of 110° Tw., such as Messrs. Crossfield and Sons make, sodium carbonate cannot possibly be present in any quantity, as it is almost insoluble in liquor of that strength. This fact of itself affords the purchaser a guarantee of purity, and the dilution to a convenient gravity, for the actual use of the soap boiler cannot add any impurity, so that by the purchase of a pure concentrated ley, the purity of leys of all strengths is ensured.

COAL IN IRELAND.—During the past eighteen months boring operations have been carried on at Dungannon, under the direction of Mr. Donald Munro, to prove the existence of coal. The work was brought to a successful issue last week, when a seam of bituminous coal, 5ft. 11in. in thickness, was struck. The depth at which the seam was discovered is 188 yards from the surface. Arrangements will be made by the Dungannon Collieries Company, Limited, for working the coal at an early date. The company own 1,800 acres of land in the neighbourhood, and the engineer is of opinion that coal lies under the whole of this area. A stratum of red sandstone intervenes between the surface and the coal measures.

IMPORTS AND EXPORTS FOR JUNE.

THE Board of Trade returns for the past month are not very promising, but rather disappointing. Alkali and bleach both show a falling off presumably due to the poor demand from the States.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1893.	1894.
Margarine	Cwt. 88,481	79,327
Copper Ore and Regulus	Tons. 18,634	15,228
Hides, dry and wet	Cwt. 70,462	88,586
Nitrate of Soda	Tons. 4,557	9,678
Tallow and Stearine	Cwt. 183,117	270,850
Tin	" 35,824	41,888

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 451,371	409,703
Cement ..	Tons. 48,883	49,667
Coal and Coke	" 2,943,919	3,014,455
Copper, all kinds	Cwt. 120,254	76,234
Iron and Steel	Tons. 296,264	260,157
Chemical Manures	" 27,905	33,895
Oils, seed	" 6,264	4,430
Salt	" 60,981	73,099

THE AMENDMENT OF THE ADULTERATION ACTS.

BEFORE a special meeting of the London Chamber of Commerce, held recently in the Council-room, Botolph House, Mr. Umney in the chair, Sir Charles Cameron, M.P., delivered an address on "The Adulteration Acts and the Need for their Amendment." The hon. member observed that the principles of legislation for the prevention of adulteration should aim at punishing the adulterator. The present effect of the law, apart, at all events, from its moral effect, must be extremely small and out of all proportion to the elaborate machinery set up. This might best be rectified by endeavouring to lay down broad general principles and applying them all round. Let it be laid down clearly in what the crime consisted, and, while placing on the vendor the onus of proving absence of collusion with the adulterator in sale, let the same rule and the ordinary rules of law apply to each case. By tracking up an adulterated article to a manufacturer or importer they could do more to stop adulteration than by a hundred technical convictions of retailers. The powers of the department should be extended so as to make it responsible, as under the Trade-Marks Act, for seeing that every article of food was imported under a true description. The rule which was applied to milk should be extended to other articles of consumption, and those charged with the administration of the Act should be empowered to take samples on their way from the consignor. The stores of the wholesale merchant and manufacturer as well as those of the retailer should be open to inspection. The meaning to be borne by words in everyday use in trade should be defined, and notice of their definition should be given before prosecuting. Some central authority should be set up, say, a department of the Local Government Board or Board of Trade, and it should be intrusted with considerable powers. Where local authorities ignored the law the department should be empowered to enforce it, and the chemical control now exercised at Somerset House should be transferred to that department. He had little doubt that the inquiry on which the House of Commons had decided would result in much good.

GOLD-MINING RETURNS FOR JUNE.—The production of gold for June by the New Primrose Gold Mining Company was 7,160 ounces; 100 stamps 28 days.

The production of the Glencairn Main Reef Gold Mining Company was 4,275 ounces; 50 stamps running 28 days.

The crushings of the New Kleinfontein Company yielded 2,213 ounces of gold.

The Ginsberg Gold Mining Company crushed 1,062 tons, producing 611 ounces of gold.

The Harquanala Gold Mining Company crushed 3,262 tons.

Last month's crushing of the Buffelsdoorn Estate and Gold Mining Company yielded 4,700 ounces of gold: 10,000 tons crushed, 8,100 tons treated by cyanide.

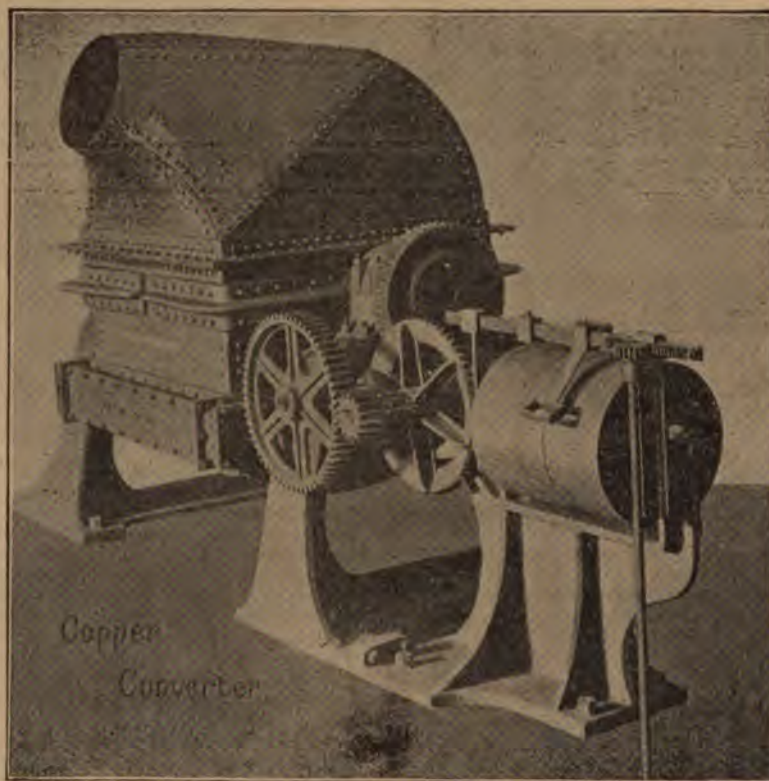
THE SMELTING AND BESSEMERISING OF COPPER ORES.

[SPECIALLY CONTRIBUTED.]

BEFORE deciding on the proper plant for the smelting of copper ores, it is absolutely necessary to determine whether it will be more profitable to convert the copper of the ores, to be treated, into a "matte," or into black copper. If the ores contain appreciable quantities of gold or silver or of both, it will, as a rule, be more advisable to convert the copper into a matte; while, if the ores contain none or very little of the precious metals, and if they are free from arsenic, antimony and nickel, it will be found more economical as a rule to convert the copper of the ores directly in one operation into black copper, *i.e.*, into unrefined metallic copper. If the ores, however, contain any of the above-named deleterious metals in appreciable quantities, it will be best to convert the largest amount of the copper into a high grade copper matte, while at the same time producing a little black copper, which then will be found to contain these impurities in a concentrated form, while the resulting copper matte will be found to be comparatively free of these deleterious metals.

and silver usually contained in the ores is separated and the pure copper obtained. One of the most interesting parts of the plant required is the Bessemerising apparatus. We illustrate a converter made by Messrs. Fraser and Chalmers, Limited, whose works at Erith, Kent, and also at Chicago, are well known in connection with all kinds of smelting plant, having built some very large plants on these lines in the Montana mining district. The improved 36 inch round water-jacketed smelting furnace-shown in Plate 80, is specially designed with a view to simplicity combined with strength, and will often run for months without cause for stoppage.

The jacket is made throughout of best flange iron, sheets planed and carefully caulked, fitted with bronze tuyeres. A removable wind box is fitted to the jacket, and the blast pipe is connected to it, thereby distributing the blast equally to each tuyere. The arrangement of the tuyeres is such as to secure a perfect delivery of blast to every part of the charge, producing a very uniform melting area throughout its entire section, thus obtaining quick action of the furnace, preventing any tendency to freezing, and great economy of fuel. The tuyeres being between the panels and entirely within the water space of the jacket, are wholly protected from the action of the heat, and consequently never burn



The main circumstance which determines the production of either matte or black copper, or of both products in smelting copper ores, is the presence or absence of sulphur in the ores or in the smelting mixture. If we have to deal with sulphuretted ores, or with ores which contain sulphides or sulphates, the production of matte will depend on the degree of preliminary roasting to which the ores have been subjected before they are melted in the cupola.

After deciding on these matters and erecting a plant suitable for the desired product, the success of the smelting depends in such large degree on no other single condition than on the proper composition of the smelting charge, as it is put into the furnace. It is the province of the metallurgist in charge of the works to determine the proper composition of this smelting mixture and to give the directions for making this mixture out of the different ores and fluxes, which are available in each case.

The method now being very extensively adopted by a number of the large sulphide copper works in the U.S.A. however is as follows: The ore is first smelted to a matte in a water-jacket furnace, which we illustrate on the next page, the details of which furnace will be dealt with later. This matte is then refined to black copper in a Bessemerising plant by Holloway's process. The black copper is then subjected to an electrolytic process of refining, by means of which the gold

out or cause any trouble. Peep holes with removable caps and mica covering, are provided in the wind box in front of each one, so that the inside of the furnace can be constantly kept in view. The crucible is made on a heavy cast-iron bottom, hinged to the plate, which is supported by four cast-iron columns, and is so arranged that it can be instantly dropped for access to the interior when repairs are necessary. The whole structure is complete with stack, inlet and outlet water pipes, and requires no brickwork except a few courses to form the crucible, and can be put up ready for operation at a small cost and in a few days' time.

For low grade pyritic ores it is sometimes advisable to introduce an outside well, into which all slag and also metal flows as fast as melted. This has been introduced on many furnaces with greatly improved results. The outside well is of iron, lined with fire-brick, and mounted on wheels resting upon a track to enable it to be removed for repairs and a second well rolled up in its place.

Without knowledge regarding the exact kind of fuel to be used for smelting copper ores in the water jacket furnace, it may be stated generally that if charcoal is used care must be taken to keep the charcoal new and dry. The dryer the charcoal is the better the results obtained will be. Complaints have occurred when using charcoal that it crushes up in the furnace by the weight or burden it carries, and this

naturally chokes up the furnace. Where this difficulty is experienced fresh charcoal should be mixed with the charcoal that crushes so as to enable withstanding a greater burden or weight of ore.

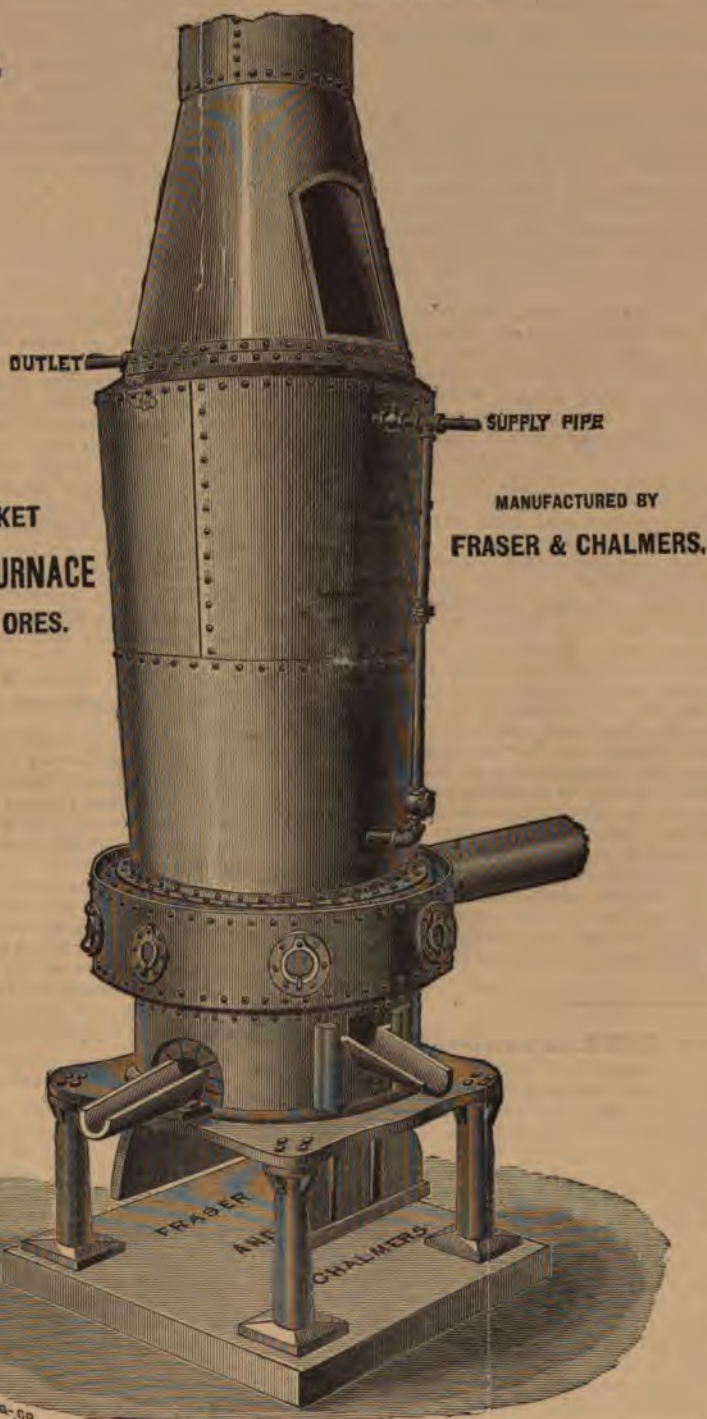
On the upper part of the furnace a hole is provided to receive a pipe. This pipe is run up through the roof to carry off steam in case it should be created by accident, thus preventing the steam driving the water back into the feed pipes.

turned. This operation is performed, say, once in 30 minutes. Of course it depends entirely upon the ore.

If it is found that the dust which will naturally pass out of the top of the furnace contains mineral, then a damper can be used on top of the stack and the dust conveyed by means of a down cast pipe to the dust chamber, which can be built outside of the building, and made of brick, stone, or sheet iron.

PLATE 80.

WATER JACKET
SMELTING FURNACE
FOR COPPER ORES.



About the best method in use for running a furnace is to place a slag pot under the slag spout on the side and tap the slag into it, allowing the slag to overflow into a second pot, and so on, until, say, five pots have been drawn off, then take away the first one and replace by another. The slag from the receiving pot generally contains a little copper on the bottom which can be returned to the furnace as the fifth slag pot is removed, the metal spout is tapped, and about 360 lbs. of metal is

In running the furnace, the ore, fuel, and fluxes will be in proportion, and the ore should be charged with fluxes and fuel alternately. If coke is used, about 13 per per cent. should be used; if charcoal, then about 30 to 40 bushels per ton, when all is in full blast, using about one pound of pressure; put one of the bullion pots under the slag spout and one slag pot under the spout of the bullion pot; put another bullion pot under the metal spout. Tap the slag and allow it to run

into the bullion pot, from which it will overflow into the slag spout; when you have taken away about five slag pots full, remove the bullion pot with its slag and replace with an empty bullion pot, then draw off the metal with the slag as before. If the ore is carbonate of about 12½ per cent. this will be about the way of running. Of course, the character of the ore will always change this, but a good idea of the working of the furnace can be gathered.

RIVER POLLUTION AT REDDISH.

TWENTY MONTHS REDUCED TO TWELVE.

AT the County Police Court last week, before Mr. Yates, Q. C., the Reddish Local Board were summoned for having on divers days between the 30th of October, 1893, and the 14th of June, 1894, caused liquid sewage to fall into the Black or Cringle Brook and the River Tame. A second summons against the Board charged them with knowingly permitting the fall or flow of the sewage into those streams. Mr. Wilson, on behalf of the Mersey and Irwell Joint Committee, said that he understood the defendants practically admitted the offence, and all that he had to ask for was the decision of the Bench. He asked for a conviction for causing the sewage to flow, and a conviction and order in the other case. The Local Board had been before the complainant Authority on a great many occasions. Shortly after Royal assent was obtained to the Act under which the present proceedings were taken the defendants were written to as to sewage disposal, and their reply was that a scheme was being adopted which would meet the requirements of the Authority. Then, in subsequent negotiations, it was said that Reddish were making arrangement with Stockport to take the sewage, and the Board were allowed three months' extension of time. That brought matters up to January, 1894, when it was reported that Reddish had made definite arrangements with Stockport. Unfortunately the April elections came on; there was a new Board, and this reversed the decision of the previous Board as to Stockport. As a result of this matters had to be commenced *de novo*, and now the complainants believed the defendants even in their own scheme had been guilty of unreasonable delay. In these circumstances the case came before that Court in order that the complainants could be in a position to force the defendants to get on with the necessary work. The Joint Committee wished to get on with the general purification of rivers as quickly as they could, and he should ask that in the order the Court would make it would bind the defendants to complete their works within nine months.—Mr. Duckworth, clerk to the defendant Board, said that it was entirely unnecessary that the summonses should have been issued. The chairman and members of the Board were very anxious that the work should be completed as soon as possible. While the Reddish Board had been doing their best the Committee had been pushing them rather too severely, and, in fact, the policy of the Committee seemed to be to deal harshly with the smaller authorities. It would take twenty months to complete the works.—Mr. M'Callum, the Board's engineer, having answered several questions put by the Bench, Mr. Yates said he did not think the Reddish Local Board had acted as quickly as they might have done, and there would be a fine of 2s. 6d. and costs, £2. 10s. in each case, and also an order to complete the works in twelve months.

THE CHILIAN NITRATE INDUSTRY.

A CHILIAN official who recently visited the Tarapaca district makes, according to the *Financial News*, the following remarks upon the future of the nitrate industry:—"I returned from Tarapaca last week, astounded at the progress made in that department since my last visit of inspection six months ago, and I believe the prosperity is general and will be permanent. The nitrate industry is on the eve of a veritable revolution, due to the inauguration of the large officina just built on the Lagunas grounds, and to the promise of several others on the same, and the Buenaventura *estacamentos*, already in the course of erection. You may imagine the effect this will have upon the older officinas when I tell you that, taken together, the two syndicates which own these fine grounds will in less than six months be manufacturing at the rate of 15,000,000 quintals a year, at more than \$1 a quintal less than the average cost at the old establishments. The new officina can make over 3,000,000 quintals a year without effort, the caliche being very rich in nitrate and iodine, and, being of great depth, it is of easy extraction, thus ensuring abundance of labour, never so scarce in Chili as it is to-day. The profit at present coast prices is 34d. a quintal, and as the *salitreros* are now having all their own way, there is no probability of any reduction, as far as I can see, for at least two or three years. It seems to be feared in Europe that the export duty is to be increased; but though, in my opinion, the country is entitled to a larger share of the big profits now being made, our Government does not entertain the idea."

RECENT CUSTOMS DECISIONS.

BARIUM DIOXIDE.

IN the matter of the protest of Messrs. S. Jack Brothers against the action of the collector of Customs at New York, as to the rate and amount of duties properly collectable on certain "binocide of barium" imported per September 7, 1893, November 2, 1893, and October 30, 1893. General Appraiser Lunt states:—

1. We find that the protestants imported into the port of New York since October 6, 1890, at the times specified in the schedule above, quantities of binocide of barium, otherwise known as peroxide of barium, upon which the collector assessed a duty of 25 per cent. ad valorem under the provision of paragraph 76, and which the importers claim to be dutiable at \$6.72 per ton as baryta, sulphate of, or barytes, including barytes earth, manufactured, provided for in paragraph 49 N.T.

2. That binocide of barium, otherwise known as peroxide of barium is a chemical compound in the form of a fine gray powder, the commercial source of which is carbonate of baryta or witherite. This substance in its chemical constitution is distinctly a substance other than sulphate of baryta, or barytes, or barytes earth, or carbonate of baryta, or witherite. It is produced in commercial quantities by heating carbonate of baryta or witherite to a dull red heat in specially adapted furnaces in order to expel the carbonic acid therefrom, and then passing a current of air over the same from which the so calcined material, after a time, absorbs the volume of oxygen required to form binocide or peroxide of barium.

3. Sulphate of baryta is commonly or popularly called barytes. It is found as a natural mineral salt both in massive and granular or earthy form, and is manufactured for use in the arts, its chemical constitution being unchanged, by grinding or washing and grinding into a powdered form, and enormous quantities in that condition are used in the manufacture of paint and paper.

4. Carbonate of baryta is also a mineral salt found in abundant natural deposits, and is commonly and popularly known as witherite. It is used in the arts as a base for some colours, also as a material for the manufacture of ceramics and plate glass, and in the process of refining sugar.

5. Binocide or peroxide of barium is chiefly used in the manufacture of bleaching compounds. It is not sulphate of baryta or barytes earth manufactured.

In addition to the oral evidence taken in this case the Board has referred to the Century Dictionary (baryte, barium, beryta, barytes and witherite), Spon's Encyclopædia, 36, Encyclopædia Brit. (barytes), Ure's Dictionary (barytes et seq), and to the statement made before the Committee of Ways and Means reported in the Official Report of Hearings before the committee at the 1st session of the 51st Congress on page 404-5.

Carbonate of baryta, or witherite, is found in the tariff on the free list in paragraph 500, while sulphate of baryta or barytes, including barytes earth, which we find to be natural mineral substances other than carbonate of baryta or witherite, are made dutiable, if unmanufactured, at \$1.12 per ton; if manufactured at \$6.72 per ton.

In the opinion of the Board new chemical constitutions which may in part be derived from sulphate of baryta, cannot be considered as sulphate of baryta manufactured, and these protests are, therefore, overruled.

ULTRAMARINE BLUE IN PULP.

In the matter of the protest of Messrs. A. B. Ansbacher and Co. *et al.*, against the action of the collector of Customs at New York as to the rate and amount of duties properly collectable on certain ultramarine blue in pulp, imported per vessels and at the dates named in schedule, the following is the decision of General Appraiser Tichenor:

We find as matter of fact that the merchandise here subject of protest is ultramarine blue imported in casks, in the form of pulp or thick paste, which is formed by grinding or otherwise mixing the powdered ultramarine with water, the proportion of the latter ranging from 40 per cent. upward, the price of the article in trade diminishing with the increase in the quantity of water contained therein.

Duty was assessed at 4½ cents per pound upon the article in the condition as imported; that is to say, upon the combined weight of the ultramarine blue proper and the water, under par. 55. The protestants claim that duty should only have been assessed upon the dry weight of the ultramarine contained in the article. One of the protestants also makes the alternative claim that the merchandise is dutiable at 25 per cent. ad valorem, under par. 61.

In G. A. 1,029 the Board sustained the claim made by the protestants that the merchandise was dutiable only at the dry weight of the ultramarine blue contained therein. Upon the Government's appeal from such decision the Circuit Court for the Southern District of New York confirmed the Board's decision "with extreme doubt."

The U. S. Circuit Court of Appeals for the Second Circuit, in the case of the United States v. Zentgraf reversed the decision of the Circuit Court and the Board, the learned Judge (Shipman) saying in the course of his opinion: "It seems apparent that Congress was aware of the differing methods in which colours were prepared for the market—that they were either dry or mixed with oil, or mixed with water—and, with respect to a portion of the blues and to the chromium colours, provided in terms that when they were mixed with water, the specific duty per pound should be assessed only on the weight of the colour actually contained therein. Congress knew of the distinguishing characteristic between the material dry and ground in water, and discriminated between the two methods when it chose to do so. It omitted any discrimination in regard to ultramarine blue, and, presumably, for a satisfactory reason. The distinction which the Legislature carefully made in paragraphs 50 and 53, and which was not made in paragraph 55, leads us to the conclusion that the distinguishing was intentionally omitted, and that the article known as ultramarine blue is dutiable at 4½ cents per pound in whatever form it is commercially known and purchased.

Following the Court's decision, we overrule the protests in each case, and the views expressed in G. A. 1,029 are modified accordingly.

Correspondence.

*. We do not hold ourselves responsible for the opinions expressed by our correspondents.

BURNING OILS.

(To the Editor of the Chemical Trade Journal.)

SIR,—I noticed in your journal for last week the text of a statement recently circulated by me on the subject of the "flash-point" of burning oils. As it may be thought that I have pecuniary interests at stake, I may mention that I do not hold a single share in any oil company, and should derive no benefit by the raising of the "flash-point."—Yours, &c., T. GRAHAM YOUNG.

New Club, Glasgow, 10th July, 1894.

(To the Editor of the Chemical Trade Journal.)

SIR,—There are two points on this question that I do not remember to have seen mentioned, but on which information would be useful.

1. What is the price of oil with flash-point say 100° compared with 73° F.?

2. Where is the 100° oil to be bought in small quantities?

This second question is not calculated for any argument with the local ironmonger from whom oil is usually obtained.—Yours, &c., H. S. Derby, July 9th, 1894.

ANNUAL GENERAL MEETING OF THE SOCIETY OF CHEMICAL INDUSTRY.

(To the Editor of the Chemical Trade Journal.)

SIR,—It is gratifying to learn from the daily reports that the epidemic is abating in Edinburgh and immediate neighbourhood. Your correspondents are angry, and hint at city jealousy; but the printed reports I sent to you at the time of writing, without which, in a matter of that import, you would, I daresay, have passed over my letter altogether, were taken not from any Glasgow paper, but from Edinburgh's own most highly-accredited organ. Leith, I understand, with its long-standing laxity in sanitary matters, is the original culprit, not Edinburgh; but when misfortune comes from any quarter whatever it should be faced, not ignored or pooh-poohed.—Yours, &c., FAIRPLAY.

[As all parties seem to agree that there is no longer anything in the sanitary condition of Edinburgh to deter visitors from attending the annual meeting of the Society of Chemical Industry, we think there is no necessity for continuing this correspondence.—EDITOR *Chemical Trade Journal*.]

ANSWERS TO CORRESPONDENTS.

W.F.C.—We should not inform you it had appeared on May 10th if it had not done so, as you seem to imply.

J. F. AND CO.—Many thanks for information and enclosures.

F. AND C.—Will be returned in the course of a few days.

P. D. C. AND CO.—It was doubtless described as it was just because it is only a small port, and therefore not to be found in the majority of Atlases. It is quite correct, however, according to the official returns. The vessel was the *faen*.

THE MANCHESTER MUNICIPAL TECHNICAL SCHOOL.

AN EXCELLENT RECORD.

IN the results to hand of the recent technological examinations held by the City and Guilds of London Institute, we find that the number of medals and prizes awarded to the Manchester Municipal Technical School is the highest gained by any institution in London and the provinces. The awards are as follow:—

Acheson, F. W., ordinary second, cotton weaving, second prize of £2. and bronze medal.

Bennett, S. B., honours first, plumber's work, first prize of £3 and silver medal.

Berry, F., honours first, mechanical engineering, third prize of £2. and bronze medal.

Burrows, Sarah E., first class, dressmaking, fifth prize (equal) bronze medal.

Clayton, W. H., Jun., honours first, calico and linen printing, first prize of £2. and silver medal.

Cockcroft, W. H., ordinary first, carpentry and joinery, first prize of £2. (equal) and silver medal.

Coups, E. A., ordinary first, lithography, second prize of £1. (equal) and bronze medal.

Crabtree, A., ordinary first, cotton spinning, third prize of £1. and bronze medal.

Follows, A. E., ordinary first, cotton dyeing, third prize of Institute's bronze medal.

Hopwood, W. H., ordinary first, coal-tar products, third prize of Institute's bronze medal.

Mottram, Joseph, honours first, carpentry and joinery, third prize of £1. (equal) and bronze medal.

Ramsden, A., ordinary first, cotton dyeing, first prize of £1. and silver medal.

Riley, F., ordinary first, calico and linen printing, second prize of £1. and bronze medal.

Robinson, H. F., ordinary first, coal-tar products, first prize of £1. and silver medal.

Roby, E. F., ordinary first, coal-tar products, second prize of £1. and bronze medal.

Stoddard, H., ordinary first, cotton weaving, third prize of £1. and bronze medal.

Tuer, A. H., honours first, cotton and linen bleaching, second prize of £2. and bronze medal.

Walmsley, Paul, ordinary first, typography, second prize of £2. and bronze medal.

Wilson, J. H., ordinary first, electro-metallurgy, second prize of £2. and bronze medal.

Zuppinger, O. A., ordinary first, cotton spinning, first prize of £2. and silver medal.

The following certificates have also been gained by students of the Technical School:—Honours stage, 31 first class and 41 second class; ordinary stage, 114 first class and 154 second class; and 51 are marked Pass. The following external candidates also sat at this school:—Nisbet, H., honours first, cotton weaving, second prize of £3. and bronze medal; Taylor, G. W., ordinary first, calico and linen printing, first prize of £1. and silver medal.

BEGGARS GOING ON STRIKE.—One of the most comical strikes on record has been threatened at Bucharest, in Roumania. The beggars, who have multiplied of late and become increasingly persistent in their appeals, were prohibited from following their profession in certain quarters of the city; whereupon the beggars met and sent a deputation to the Prefect of the Police, and said that if the prohibition were enacted they would not beg at all, but go on strike, and turn their attention to other and less innocent methods of getting a living. The Prefect is reported to have promised to reconsider his decision.

INVENTORS AND THE PATENT OFFICE.—It appears from the annual report of the Comptroller of Patents that in 1893, applications were made for more than 25,000 patents, 19,400 designs, and 8,675 trade marks. The business in trade marks and designs has fallen off somewhat of late years, but the patent applications may be said to be steadily increasing at the rate of about 1,000 per annum. The great bulk of these applications naturally come from the United Kingdom, but it is interesting to note that nearly ten per cent. represent the inventive enterprise of Americans and colonials, while amongst continental inventors the largest patrons of our Patent Office are undoubtedly the Germans. This affords some index of the industrial energy pent up in Germany and striving for an outlet, which makes Teutonic competition so serious a matter for the British manufacturer. Last year the enthusiastic patentee contributed some £174,800. for services which, assuming that the Patent Office is not an institution for making profits out of the brains of inventors, cost at the outside £95,000., including a considerable sum devoted to new buildings.

The Ship Canal & Chemical Trade.

CHEMICAL CARGOES.

AMONG the vessels which have recently arrived at Manchester *via* the Ship Canal, the *Renfrew* has brought a cargo of sulphur ore from Conway. The *Alice* brought limestone.

MORE WOOD PULP.

The steamer *Sjolland*, which arrived in the docks, on Saturday last, brought a cargo of 800 tons of wood pulp from Skein, in Norway, consigned to Messrs. Newall and Son and Mr. H. B. Wood, Manchester. This is the second cargo—making 1,050 tons—of this material delivered here within a fortnight.

THE FIRST CARGO OF PYRITES BY THE THROUGH ROUTE.

One of the first consignments of traffic forwarded from the Manchester docks by railway under the through rate arrangement, which has recently been put into operation, is the cargo of iron pyrites per the steamship *Rosella* from Huelva. The larger portion of this cargo of 1,800 tons has been carried over the Cheshire Lines Railway to the works of Messrs. Bowman, Thompson, and Co., and the Davis's Chlorine Processes Company, Limited, Lostock Gralam. The Canal Company may claim to have created a record despatch in discharging and forwarding this cargo. The steamer arrived at No. 8 Dock about eleven p.m. on Thursday, 5th inst., where the discharge by two hydraulic cranes was immediately commenced, and working through night and day without intermission, except for meal hours, the whole of the cargo was discharged into railway waggons by one o'clock on Saturday afternoon, 7th inst., thus occupying only thirty-three working hours. The whole of the 1,800 tons were landed, loaded into railway waggons, and despatched off the dock estate before three p.m. on Saturday, the result being highly satisfactory to the steamship owners and merchants.

Trade Notes.

HOPE FOR THE IRWELL YET.—A small jack in excellent condition was captured in the Thames on Saturday, at Westminster, and has been sent to a taxidermist for preservation. Higher up the river, at Battersea, it is reported that numbers of roach and dace have lately been caught with rod and line, and as a result of the purer water which now flows in the river in the London district these fish have also been seen at Blackfriars, London Bridge, and Rotherhithe.

"PURE BUTTER."—At the Bury Police-court, last Monday, Thomas Ormerod, of Ramsbottom, was summoned for selling as butter an article containing over sixty per cent. of fats. The charge was dismissed, defendant proving that the article was warranted pure milk butter by Thomas Kelly, of Bolton. Colonel Mellor said the Bench were sorry they could not fine Kelly. The Act did not give power to do so, though the Select Committee recommended that it should. Kelly knew of the adulteration and had been warned.

THE ASCENDENCY OF FLAMELESS EXPLOSIVES.—The Commission which has inquired into the inflammability of coal dust in mines and its tendency to ignite, as well as the tendency of fire-damp to explode from blasting with gunpowder, have signed their report. They recommend that the use of gunpowder shall be discontinued in mines liable to coal dust and fire-damp, which is tantamount to absolute prohibition, although the report does not particularise a substitute, for reasons which are obvious. Mine managers will thus be compelled to use one of the higher explosives, which, unlike blasting powder, are flameless.

TYPEWRITERS IN ARMY MANŒUVRES.—A novel feature of the Royal Military Tournament this year was the introduction of the typewriter on the battle field for the purpose of recording messages from signallers. The typewriter operator was an expert cyclist and had his Remington mounted on the handles of the cycle. He rode in and out among the horses and gun carriages at each performance without a single mishap. On coming to a standstill he instantly braced the cycle by a simple attachment and did his writing while in the saddle. The message when completed was sent to the commanding officer in the rear by means of a trained Collie.

BURSTING OF A CANAL.—An alarming accident occurred about midnight on Monday at Spring Vale, Wolverhampton. Near to the large ironworks of Sir Alfred Hickman, M.P., the banks of the Birmingham canal gave way, creating a huge gap, through which the water rushed with great force. Several collieries were flooded, a cottage was inundated, and enormous damage was done, the most serious effect being the stoppage of several large works and the suspension of all canal traffic between Wolverhampton and Birmingham. Two thousand men are thrown out of employment. The damage will amount to about £8,000.

THE OUT-PUT OF QUICKSILVER.—The Cuadacazar Quicksilver Mines during the four weeks ending June 28 produced 10,500 lb. of quicksilver.

GRASS DESTROYING CATERPILLARS.—These mischievous pests, the caterpillars of the Antler moth, are again devastating the upland pastures of Scotland about Roxburghshire. They are easily recognisable by their excessively shiny appearance and bronzy colour, with three pale longitudinal lines and a fainter line below them on each side. They are about an inch and a half in length, and usually the time of feeding is considered to end in June, but in the present case is lasting longer. The only remedy appears to be firing the ground; the caterpillars, so far as recorded, sweep on in vast numbers, and, whether their course is crossed by streams or standing water, they still advance, and by firing the land in bands their course can be directed towards running water, where they will be swept away, or to pools where they are destroyed.

FORTUNATE CREDITORS.—A meeting of the creditors of the Ainsworth Vale Bleaching Company, Limited, was held at Bolton, recently, for the purpose of appointing a liquidator and committee of inspection. A winding-up order was made on the 23rd May upon the petition of a creditor, and the statement of affairs showed a deficiency to unsecured creditors of £453., to which will have to be added the costs of liquidation. Mr. J. H. Riley, the principal creditor, in proposing Mr. A. W. Johanning, the late secretary to the Company, as the liquidator, said there was a scheme in progress under which the creditors would pretty well get the whole of their money. Invited by several creditors to say what the scheme was, Mr. Riley announced that he, along with another creditor, proposed to pay all the others 20s. in the pound and take over the estate, an announcement which was greeted by those present with loud "hear, hears." Mr. Johanning was appointed liquidator, with a committee of inspection. The Company was formed in December, 1891, with a nominal capital of £10,000., of which £2,763 had been subscribed at the date of the winding-up order. The cause of the insolvency of the Company is given as insufficient capital.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is no material change in benzols, though prices are quoted rather lower. Both crude and crystal carbolic acid remain steady at last week's quotations. Crude naphtha is slightly inclined to be firmer at 5½d. to 6d. Solvent naphtha is decidedly stronger at 1s. 4½d. Creosote is also a shade firmer, for the better qualities especially. Pitch is unchanged at 31s. to 32s., f.o.b. East Coast.

Sulphate of ammonia is slightly easier in price, owing to the pressure for sale of some second-hand parcels as low as £13. 13s. 9d. Buyers seem keeping off the market in the hope of a decline, though sulphate is very scarce. Beckton value is £13. 17s. 6d., London outside makes are steady at £13. 17s. 6d. The same figure has been accepted at Liverpool and Hull. Leith quotations range from £13. 17s. 6d. to £14. Nitrate easier.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is little or no improvement to report in the general state of business. Prices on the whole have a rather lower tendency, but spot quotations are nominally without change, viz.:—white caustic soda, 77%, f.o.b. Tyne, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s. per ton, 10-ton lots and upwards. Alkali, 58%, £3. to £3. 2s. 6d. per ton, bags, makers' works. Soda crystals, £2. 2s. 6d., bags, f.o.r., and £2. 10s., casks, f.o.b. For bleaching powder there is still a fairly good inquiry, both for prompt and forward delivery, and so far as price is concerned, the market is strong. Chlorates of potash and soda are 7d. and 8d. per lb., respectively. Sulphur a quiet market, at £3. 12s. 6d. to £3. 15s., f.o.r. Brimstone in casks, f.o.b., £5. 7s. 6d. Flowers of sulphur £7. 5s. per ton. Sulphate of copper continues to decline, owing to falling off in demand, spot price being £14. to £14. 5s. per ton, f.o.b. White powdered arsenic firm at £14. 5s., f.o.r. Nitrate of soda is easier on the spot at £9. to £9. 2s. 6d. per ton. Potash, caustic and carbonate, continue in active request, and prices are firm—90/92% carbonate at £16. 15s., c.i.f., and caustic potash, 75/80%, £20. per ton. In brown and grey acetates of lime, the trade is quiet on the spot, but the market is firmer, owing to limitation in output. White sugar of lead is quoted lower at £24. 10s., c.i.f. In carbolic acid crystals and liquid the state of trade is still disappointing, and prices are without any material change—crystals, 39/40%, 6d. to 6¼d., in quantity, and liquid, 95/97%, 1s. 2d. to 1s. 3d. per gallon. Aniline oil and salt are stationary in price, and there is only a limited demand. Prussiate of potash firm at 10½d. Sulphocyanides quiet. In cyanide of potassium price tediously maintained, and there is brisk inquiry.

REPORT ON MANURE MATERIAL.

During the week the market has been steady, without much business passing either in the prompt or forward position. Mineral phosphates continue steady: for 75/80% Florida rock 8d. per unit now required, in cargoes c.i.f. to good United Kingdom ports, 1895 steamer shipment, and 8½d. asked c.i.f. to Continent and Baltic ports. South Carolina River rock is firm at 6½d. per unit, and Peace River rock, being scarce, is held for more money. Some business in Continental phosphates is passing at prices rather favouring buyers. There is nothing fresh to report in River Plate bones; handy-sized cargoes are much inquired for, but none are forthcoming at the moment—£4. 12s. 6d. would be accepted for cargoes of large size, but these are only suitable for very few buyers, and they rather hang back. Business has been done in crushed Kurrachee bones, November-December steamer shipment, at £4. 13s. 9d. per ton, ex quay Liverpool, and £4. 15s. per ton asked for further quantity. Sellers continue to quote £4. 17s. 6d. for Bombay bone meal, autumn shipment, but so far buyers will not give the price, they look to buying at £4. 15s. or less, but with not much prospect of success at present. Owing to arrivals the market for nitrate of soda is easier on spot: there are sellers of good quality, ex quay, at 9s. 3d. per cwt., and for shortly due something less would probably be accepted for quantity. The position of cargoes is unchanged. There is nothing to report in miscellaneous manure material.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, July 3rd, 1894, state:—

Chili Charters for the second half of June are advised as 1,200 tons, which with 1,100 tons for the previous fortnight makes 2,300 tons for the month. The total since 31st December is 10,550 tons, against 10,100 tons same time last year. Since our last the market for G.O.B.'s and G.M.B.'s has been irregular, and about 4,500 tons sold at from £38. cash and £38. 8s. 9d. three months, up to £38. 8s. 9d. and £38. 17s. 6d., respectively, closing to-day with buyers at 1s. 3d. less for both positions. The exports from the United States to Europe during the second half of June were about 2,200 tons, making 5,561 tons for the month. The total stocks in Liverpool, Swansea, London, and Havre are 45,772 tons, against 45,753 tons on the 16th ult., showing an increase of 19 tons for the fortnight. The figures for the previous fortnight showed an increase 1,973 tons, making the increase for the month 1,992 tons. The stocks include about 1,600 tons of copper, sold but not yet delivered to smelters. The visible supply for the fortnight is 49,964 tons, against 49,164 tons on the 16th June, showing an increase of 800 tons. The month's figures show an increase of 2,349 tons. The stock of English G.M.B.'s in Liverpool remains at 2 tons. Refined and manufactured sorts are dull. Quotations being:—Tough cake, £40. 10s. to £41.; best select, £41. to £41. 10s.; Indian sheets, £45. 10s. to £45. 15s.; strong sheets, £50.; and yellow metal sheets, 4d. per lb.

The sales of furnace material only comprise 13 tons Spanish precipitate, at 7s. 6d.; and 100 tons ordinary Montana matte, spot (the only parcel here), at 8s. 3d. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia has further recovered under the possibility of a general blowing out of the blast furnaces throughout Scotland, should the coal strike set in for a lengthened stay. The recovery would be much more marked had there been any brisk demand for consumption; but there is not, and forward dealing for its part is about a blank. Holders' quotations for prompt are now £14. to £14. 2s. 6d. Leith, and will go higher this week unless the strike suddenly ceases, of which there is little probability.

In common chemicals there is still only a very languid feeling, and the excuse offered by the Fair Holidays (beginning Friday first) for closing doors during a week or more, is pretty generally welcomed. About the only market feature noticeable is the continued firmness of soda crystals owing to the season's usual difficulty of production.

Mineral oils and paraffins are mainly stationary, the only price exception meanwhile being paraffin spirit (naphtha), which is firmer by about a halfpenny per gallon.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 12s. 6d. to £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum lump £5. 10s. nett, Glasgow, caustic soda, white, 74/79. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £22. 10s., and boracic acid, £32. 10s. nett, Glasgow; bicarbonate of

soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s. 6d.; sulphate of ammonia, £14. to £14. 2s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. less 5% Liverpool; paraffin scale, hard 1½d.; soft 1½d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4d. per gallon; paraffin oil (burning), standard No. 1 grade, 5d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 86½° £3. 10s., 88½° £4. to £5., and 89/89½° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 7,487 bags.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 41s. 9½d., Middlesbrough 35s. 3d. cash, and hematite 43s. 7d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s, closed at £38. 8s. 9d. to £38. 13s. 9d. cash, and £38. 16s. 3d. to £39. 1s. 3d. three months. Tin, easy: Straits closed at £67. 12s. 6d. to £68. 2s. 6d. cash, and £68. 2s. 6d. to £68. 12s. 6d. three months; Australian, £68. 5s.; English ingots, £71. to £71. 10s. Lead, firm: Spanish, £9. 12s. 6d. to £9. 13s. 9d.; English, £9. 13s. 9d. to £9. 15s. Silesian Spelter, ordinary, £16. Nickel, 1s. 8d. Antimony, £32. Quicksilver: first hands, £6.; second hands, £5. 18s. 6d. Copper shares, steady: Cape, 1½ to 1¼; Copiapo, 1½ to 1¼; Libiola, 2½ to 3½; Mason and Barry, 2¼ to 2½; Rio Tinto, 12½ to 13½; Tharsis, 4¼ to 4½.

WOLVERHAMPTON, WEDNESDAY.—The ironmasters' quarterly meeting was held to-day. An improved tone was noticeable, and some fair buying passed. Marked iron was redeclared on last quarter's basis of £7. 10s. (bars), £8. hoops and angles, £8. 10s. to £9. rivet iron and boiler plates, and £9. 10s. best boiler plates. Common and merchant bar prices showed a drop on January, 1893, of 5s. to 7s. 6d., and sheets 7s. 6d. to 10s. Pigs firm at last week's quotations. Coal: slow.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet and easier in price: some sales have been made, including Cameroons at £20. and Lagos £20. 15s. per ton, both transit. Olive continues much the same, with a limited demand at recent values. Linseed, after ruling easier, is again quietly steady at 22s. to 23s. per cwt. for Liverpool makes in export casks. Cottonseed fulfilled the tendency of the market by being easier early in the week, but is now a shade firmer, Liverpool refined being dull at 20s. 9d. to 21s. 3d. per cwt. Castor oil remains unaltered in price, with a fair amount of business doing: good seconds Calcutta being quoted 2½d. to 2¼d., and first pressure French 2½d. per lb., at which price small sales of the latter have been made. Tallow is slow of sale at current values. Rosin is rather firmer, with common 3s. 7½d. to 3s. 9d. per cwt., medium and fine unaltered. Spirits of turpentine are now steady at 22s. 9d. to 23s. per cwt. Petroleum dull at last week's quotations, for both American and Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium £10.; finest, £20. Zinc oxide, £23. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue fairly steady. Soda crystals, £2. 1s. per ton stocks reduced. Bleach, £7. 5s. per ton. 76/77° Caustic, £10. 10s. per ton. Sulphur advanced to £4. per ton. Considerable sales have recently taken place for this and next year.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 10s. per ton, nett; do., 70°, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett; soda ash, 48%, £3. 12s. 6d. per ton, nett; do., 52%, £3. 16s. 3d. per ton, nett; do., 56%, £4. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s.

per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt is quoted at 10s. and 10s. 6d. per ton f.o.b. Tees. Shipments are large at present.

COALS.—Trade is quiet and depressed, the demand from Scotland being small, whilst the closing of shipbuilding yards on the Wear and Tees throw more coal on the market. Best Northumbrian steam, 11s. per ton; second quality steam, 9s. 6d. per ton; small steam, 5s. and 5s. 6d. per ton; bunker coal, steady: 7s. 3d. and 7s. 6d.; coke steady, 13s. 6d. and 14s. 6d. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

The Blue Book recently published gives to Hull the third position of United Kingdom ports in its value of imports and exports with a total value of £36,852,389., being £22,810,930. value of imports and £14,041,459. value of exports. Added to these exports there is a value of £5,152,914. for transshipments, placing Hull in a good third position of ports for transhipment.

OILS.—The market generally is without animation, the tendency of all prices of oils being downward. The imports compared up to date with same time last year being: Linseed, 222,345 qrs against 158,162 qrs.; rapeseed, 61,903 qrs. against 25,455 qrs.; cottonseed, 12,361 tons against 5,993 tons; rape oil, 4,166 casks against 3,797 casks: oil cakes, 9,596 tons against 11,353 tons; tallow, 10,749 cwt. against 17,269 cwt.; turpentine, 8,362 barrels against 8,741 barrels. Linseed oil has again declined about 7s. 6d. per ton, closing dull at 20s. naked spot; July-August, 19s. 10½d. to 19s. 9d.; and September-December or January-April, 18s. 9d.; export for the week being 1,300 cwt. Refined cotton oil remains at 18s. 9d. naked spot, and same now the nearest value for July-August; November-April unchanged at 17s. 9d.; export for the week of refined being 1,640 cwt. Spirits of turpentine easier, 23s. being about the value. Olive and rape oil unchanged. Castor oil, 2¼d. per lb. for first pressure. Cod oil very quiet, £17. to £20. per ton. Sod oil from £16. to £22. per ton. Petroleum jellies, orange, 4d. per lb., white 8d. to 8½d. per lb., packed in square tins of 5 lbs. each. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes, little doing, but prices remain firm. Best makes, 95% pure, £6. 10s. to £6. 12s. 6d. Russians, £6 12s. 6d. Oilcakes, £5. 17s. 6d. Cotton cakes quiet, but prices steady; Best makes, £4. 2s. 6d.; seconds £3. 17s. 6d. per ton; new seed November-March, £4. 5s. Rape cakes: Black Sea, £3.; feeding cakes, £4. 15s. per ton.

PAINTS.—The trade continues brisk, but makers lament, saying if trade were better orders which are small would be bigger. Oxide of iron dry, from £7. to £18. per ton. Venetian red dry, from £3. 15s. per ton; blue black, £4. 5s. per ton; yellow ochre from £3. 15s. per ton; levigated umber, £4. 5s. per ton; casks free, f.o.b., English port. Common black varnish £5. 10s. per ton. Ready mixed paints in tins from £24. per ton.

New Companies.

Belchers' Patent Smoke Preventer Co. Ltd.—CAPITAL £1,000., in shares of £1. each. This company has been formed to acquire certain patents in connection with smoke consuming furnaces.

Sirrah Oil Syndicate, Ltd.—CAPITAL £1,000., in shares of £1. each. This company has been formed to acquire patents relating to the treatment of oils, and to trade as oil dealers and refiners.

Livesey Brick and Tile Co., Ltd.—CAPITAL £10,000., in £10. shares. This company has been formed to acquire the business of brick manufacturers now carried on by the Livesey Brick and Tile Co., near Blackburn.

Weston and Westall, Ltd.—CAPITAL £20,000., in £10. shares. This company has been formed to acquire the business of Messrs. Weston and Westall, and to trade as salt and chemical merchants, and wharfingers. The subscribers to the memorandum of association are:—Jno. W. Weston, 115, Lower Thames-street, E.C., salt merchant; J. W. Fox, 115, Lower Thames-street, E.C., salt merchant; F. H. Hopcroft, 127, Forest-road, N.E., clerk; D. A. Legg, Leyton, clerk; H. H. Norris, Woodford, Essex, clerk; J. W. Phillips, 25, Charring-ton-street, N.W., clerk; J. Woolfrey, (jun.), 102, Geneva-road, S.W., clerk.

Pilkington Bros., Ltd.—CAPITAL £800,000., in shares of £100. each. This company has been formed to acquire the business of glass manufacturers, now carried on at St. Helens by Messrs. Pilkington Bros. The subscribers to the memorandum of association are:—W. Pilkington, Robey Hall, Liverpool, manufacturer; T. Pilkington, Knowsley Cottage, Prescott, manufacturer; W. W. Pilkington, Hazels, Prescott, manufacturer; R. Pilkington, Ramford Hall, St. Helens, manufacturer; W. L. Pilkington, Houghton Grange, Liverpool, manufacturer; R. A. Pilkington, Hazels, Prescott, manufacturer; E. S. Pilkington, Ramford Hall, St. Helens, manufacturer; A. R. Pilkington, Ramford Hall, St. Helens, manufacturer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Smoke-Consuming Apparatus. A. J. Boulton. 12,227. June 25.
New Manufacture of Paint. A. J. Protheroe. 12,229. June 25.
Improvements in the Distillation of Zinc. H. T. Barnett. 12,341. June 26.
Improved Hydraulic Cement. W. Bruch. 12,350. June 26.
Process and Apparatus for Obtaining Glycerine, etc., from Spent Soap Leys. J. V. Ruymbeke and W. F. Jobbins. 12,367. June 26.
Glazing Bricks and Metals. M. Ahern. 12,386. June 26.
Manufacture of Anhydrous Stannic Acid. I. A. F. Bang and M. C. A. Ruffin. 12,384. June 26.
Manufacture of Seamless Steel Tubes. R. Wootton and F. H. Griffiths. 12,479. June 27.
Manufacture of White Lead. W. B. Priest. 12,595. June 28.
New Colouring Matters. A. Ashworth and J. Bürger. 12,621. June 29.
Producing Nitric Acid and Nitrates of Soda, Potash and Lime. F. Hamer. 12,634. June 29.
Improvement in the Purification of Gas. E. Hermite, C. F. Cooper and E. J. Paterson. 12,663. June 29.
Manufacture of Sulphuric Acid and Apparatus Therefor. A. Staub. 12,675. June 29.
Removing Sludge from Sludge Tanks. J. T. F. Bishop. 12,699. June 30.
Using Bye-Products of Iron and Copper Ores for Manufacture of Persulphate of Iron for Sewage Treatment. G. Dalton and T. B. Provis. 12,708. June 30.

Gazette Notices.

PARTNERSHIP DISSOLVED.

C. CLAXTON AND H. TINDALL, paint grinders and mixers and paint manufacturers, Derby, under the style of C. Clayton and Co.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending June 30th.

Acetic Acid—

Belgium, 10 pkgs. T. H. Lee
Holland, 3 Beresford & Co.
" 94 A. & M. Zimmermann

Acetone—

Holland, 3 pkgs. G. Rahn & Co.

Alkali—

France, 230 c. Arnati & Harrison
Holland, 2,114 Walker, Howard & Co.
" 3,400 R. Waters

Alum—

Holland, 25 pkgs. Ohlenschläger Brs.
" 8 J. M. Steel & Co.

Aniline—

Spain, 4 pkgs. J. M. Wimble

Antimony Ore—

Australia, 21 t. T. Merry & Son
France, 100 Smith, Sundius & Co.

Arsenic—

Germany, 30 pkgs. Burgoyne & Co.

Asbestos—

Italy, 280 Mory & Co.
" 300 Cape Asbestos Co.
" 680 Brit. Asbestos Co.
Holland, 22 G. Rahn & Co.

Italy, 50

France, 14 Bot. & Nich's Wf.
U. States, 9 Mory & Co.
" 7 W. Friedlander
" W. Byford

Barytes—

Holland, 39 cks. J. L. Lyon & Co.
" 23 S. H. Willoughby
Germany, 110 W. Harrison & Co.
Belgium, 137 pkgs. "

Bleaching Soda—

Germany, 69 c. H. Lambert

Bromine—

Germany, 20 pkgs. A. & M. Zimmermann

Caoutchouc—

Aden, 33 c. Major & Field

E. Indies, 43 L. & I. D. Jt. Co.

U. States, 73 "Ralli Bros.

C. America, 152 Williams, Torrey & Co.

Savannah, 39 Price, Hickman & Co.

Natal, 146 Stiebel Bros.

U. S. Columbia, 40 c. J. Morrison & Co.

France, 26 c. Prop. Bull. Wf.

Trinidad, 59 Mess Parisiennes

L. & I. D. Jt. Co.

Castor Oil—

Italy, 10 cs. Hodgkinson & Co.

" 10 May, Roberts & Co.

" 5 Laughton, Edden & Co.

" 13 Evans, Leacher & Co.

E. Indies, 491 Kiero, Moakes & Co.

" 118 Cayzer, Irvine & Co.

" 200 Wrightson & Son

France, 10 cks. Beresford & Co.

Belgium, 60 J. T. Morton

Germany, 60 Furst Bros.

Chemicals (otherwise undescribed)

Germany, 412 L. & I. D. Jt. Co.

" 90 pkgs. T. H. Lee

" 122 A. & M. Zimmermann

" 3 7 cks. Phillips & Graves

U. States, 40 Petri Bros.

Belgium, 21 H. Wigmore

Melbourne, 5 T. Palmer

Brisbane, 5 W. J. Bush & Co.

Finlay & Co.

Cream of Tartar—

Portugal, 3 pkgs. B. & F. Wf. Co.

Spain, 22 C. Christophersen

Holland, 20 Kirkpatrick & Co.

France, 10 cks. W. C. Bacon & Co.

F. C. Devon & Co.

Dextrine—

Germany, 150 pkgs. M. D. Co.

Hernu, Peron & Co.

Dye-stuffs—

Argols

Italy, 25 pkgs. Thames S. T.

Canaries, 3 pkgs. G. S. Bruce

Germany, 5 pkgs. T. H. Lee

Rangoon, 965 H. T. Norton

Extracts

U. States, 50 pkgs. W. Burton & Sons

Canada, 380 A. J. Humphrey

Germany, 9 T. H. Lee

Canada, 83 Furness, Withy & Co.

Holland, 1 R. J. Fullwood & Bland

Denmark, 27 Bailey & Leatham

Melbourne, 1 Sorensen & Co.

France, 70 W. J. Bush & Co.

L. J. Levinstein & Sons

" 30 B. & F. Wf. Co.

" 50 Union L. Co.

Fustic

Jamaica, 1 t. Park, Macfadyen & Co.

" 10 Anderson, Anderson & Co.

Indigo

E. Indies, 56 cts. R. von Glehn & Sons

" 56 Arbuthnot, Latham & Co.

" 3 J. Owen

" 4 L. & I. D. Jt. Co.

" 22 Forbes, Forbes & Co.

Egypt, 6 Schoulaik & Co.

Holland, 1 T. H. Lee

Logwood

Jamaica, 51 t. Park, Macfadyen & Co.

" 5 Hawthorn, Shedden & Co.

" 55 Anderson, Anderson & Co.

Myrabolams

E. Indies, 1,604 pkgs. L. & I. D. Jt. Co.

" 654 J. Graves

" 667 Hoare, Wilson & Co.

" 3 A. Hagan

Orchella

Germany, 1 87 pkgs. Prop. Bull. Wf.

Safflower

E. Indies, 28 pkgs. Brown & Elmalie

Saffron

Spain, 3 pkgs. B. & N. Wf. Co.

Tanners' Bark

Natal, 24 t. A. & W. Nesbitt

Germany, 50 Anning & Cobb

Turnerle Beresford & Co.

E. Indies, 160 pkgs. Beresford & Co.

" 170 S. Figgis & Co.

" 6 L. & I. D. Jt. Co.

Farina—

Germany, 200 pkgs. Seaward Bros.

Holland, 50 Ohlenschlager Bros.

Glucose—

Germany, 200 pkgs. 200 c. Ohlenschlager Bros.

" 25 200 Pillow, Jones & Co.

France, 600 600 L. Norman & Co.

" 200 200 Barrett, Tagant & Co.

U. States, 300 300 Robinson, Sons & Co.

" 350 1,560 L. Norman & Co., Ltd.

" 500 500 C. F. Webster & Co.

" 800 800 L. & I. D. Jt. Co.

" 1,500 1,500 R. G. Hall & Co.

" 99 545 T. M. Duche & Sons

" 100 600 Deering & Robottom

" 250 250 J. Barber & Co.

" 1,700 1,700 Fellows, Morton & Co.

" 100 600 Soundy & Sons

" 50 100 Pickford & Co.

" 1,000 1,000 Humphrey & Co.

Iodine—

Germany, 44 pkgs. A. Gibbs & Sons

Infusorial Earth—

Germany, 435 W. Byford

Lead Acetate—

Germany, 8 pkgs. Petri Bros.

Manure—

Germany, 9 t. Beresford & Co.

Holland, 10 W. G. Blagden

U. States, 135 H. & E. Albert

France, 89 D. de Pass & Co.

" 130 Wylie & Gordon

Methyl Alcohol—

Belgium, 21 dms. Stein Bros.

U. States, 125 brls. J. Kertel

Mica—

E. Indies, 1,211 W. M. Smith & Sons

" 142 Ralli Bros.

" 1,792 J. Mitchell

Adelaide, 95 W. M. Smith & Sons

E. Indies, 450 Wiggins & Sons

Naphthaline—

Germany, 36 pkgs. Fleming's Oil Co.

Ochre—

Holland, 16 pkgs. 2 cks. Phillips & Graves

Paraffin Wax—

U. States, 100 cs. Anglo-American Oil Co.

" 102 brls. Mordaunt Bros.

" 85 G. H. Frank

" 705 H. Hill & Sons

Phosphate Rock—

Spain, 200 t. J. Gibbs & Co.

Belgium, 233 Anglo-Cont. G. Wks.

France, 350 Lawes Manure Co.

Pitch—

Belgium, 5 pkgs. Poth, Hille, & Co.

Sydney, 39 cks. J. Greig

Plumbago—

Ceylon, 42 brls. J. Forsey

" 77 Lucas & Spencer's Wf.

" 79 R. G. Hall & Co.

" 305 cks. J. Thredder, Son, & Co.

Holland, 6 B. Galloway

Germany, 6 H. J. Enthoven & Co.

Ceylon, 358 pkgs. H. T. Morton

Potash—

France, 20 c. Petri Bros.

Potassium Bichromate—

Germany, 80 pkgs. Page, Son, & Co.

Potassium Carbonate—

Holland, 113 c. Spies Bros. & Co.

Germany, 100 H. Grey, junr.

Potassium Sulphate—

France, 68 pkgs. Mead, Son, & Co.

Pumice Stone—

Italy, 42 t. B. & N. Whvs. Co.

" 4 Stobbs, Wilson, & Co.

" 6 T. Hill Jones

" 12 Cartwright, Mead, & Co.

Quicksilver—

Spain, 300 brls. L. & I. D. Jt. Co.

Rosin—

U. States, 1,900 brls. Prod. Brokers Co.

" 500 J. Knight & Sons

Saltpetre—

Belgium, 2 brls. Sawyer, Sons, & Co.

E. Indies, 306 bgs. Lucas & Spencer's Wf.

Germany, 46 cks. J. Hall & Son

" 113 P. Hecker & Co.

E. Indies, 131 bgs. Co-op. Lightge. Association

Sodium Acetate—

France, 38 pkgs. S. F. Waters & Co.

" 40 J. Barnett & Sons

Sodium Hyposulphite—

Holland, 40 pkgs. A. & M. Zimmermann

" 40 Beresford & Co.

Starch—

Germany, 1,310 pkgs. Horne & Co.

Holland, 370 Seaward Bros.

" 100 J. Barber & Co.

" 730 A. Starck

" 280 M. Benschler

" 600 Little & Johnston

" 200 Magee, Taylor, & Co.

" 136 Phillips & Graves

" 200 Vokins & Co.

" 40 G. Rahn & Co.

Belgium, 256 Taylor Bros.

" 110 T. Rosenthal & Co.

" 170 T. H. Lee

" 150 Leach & Co.

" 40 Barrett, Tagant, & Co.

" 173 Fardell & Co.

U. States, 100 L. & I. D. Jt. Co.

Stearine—

France, 80 bgs. Walbaum & Tosetti

U. States, 60 cks. Furness

Belgium, 63 Withy, & Co.

Sulphur—

Italy, 54 t. G. Boor & Co.

Talc—

E. Indies, 600 J. S. Dismoor & Co.

Tallow and Stearine—

U. States, 13 cks. Rosenbergs & Co.'s Successors

Tartaric Acid—

Holland, 43 pkgs. B. & F. Wf. Co.

Turpentine—

Savannah, 888 brls. Prod. Brokers Co., Ltd.

Ultramarine—

Holland, 1 ck. M. Benschler

" 1 G. Rahn & Co.

" 20 Hernu, Peron, & Co.

" 3 cs. Haefner, Hilpert, & Co.

Germany, 7 H. Brooks & Co.

" 22 pkgs. Steinhoff, Sons, & Co.

Belgium, 11 cs. W. Harrison & Co.

" 6 cks. Leach & Co.

Varnish—

Germany, 10 pkgs. L. & I. Dk. Co.

White Lead—

Germany, 20 cks. Colthurst & Harding

" 19 H. Lambert

" 5 A. Stedman & Sons

" 40 M. Ashby, Ltd.

" 20 A. Zumbach & Co.

Holland, 36 Spies Bros. & Co.

" 10 N. J. Fenner & Co.

Italy, 1 A. L. Cutbill

Wood Pulp—

Germany, 104 pkgs. C. S. Lovell

" 200 L. & I. D. Jt. Co.

" 669 J. Dickinson & Co.

Canada, 22,903 E. J. & W. Goldsmith

Holland, 1,471 Ekman Pulp Co.

" 308 Horton-Kirby Paper Works

" 163 Phillips & Graves

" 540

Norway, 50 L. Knoblauch

" 300 C. Christophersen & Co.

" 847 W. G. Taylor & Co.

" 14 J. Spicer & Sons

" 793 Moreton Cox Bros.

Belgium, 35 Henderson, Craig, & Co.

Zinc Oxide—

Holland, 100 brls. M. Ashby, Ltd.

Germany, 100 " "

Holland, 54 cks. J. Matton

" 500 Soundy & Sons

" 50 Prop. Dowgate Dk.

LIVERPOOL.

Week ending June 28th.

Acetate of Lime—

New York, 719 bgs.

Acetic Acid—

Rotterdam, 17 cbys.

Albumen—

Genoa, 10 cs. W. Renwick & Co.

Aluminium—

Rotterdam, 4 cs.

Barytes—

Rotterdam, 2 cks.

Benzine—

Philadelphia, 500 brls. Meade-King, Robinson & Co.

Borate of Lime—

Valparaiso, 578 sks.

Colours—

Hamburg, 35 cks. 5 cs.

Ghent, 4 brls. J. T. Fletcher & Co.

Cream of Tartar—

Barcelona, 13 bds.

Tarragona, 5 cks.

Dye-stuffs—

Annatto

Bordeaux, 2 cks.

Cutch

Hamburg, 5 chits.

Extracts

Nantes, 575 brls.

Bordeaux, 300 cks.

Baltimore, 20 Hervey, Peck

Plumbago — Genoa, 280 bgs. G. Huntriss & Co.	
" 80	
Potash — Hamburg, 60 cks.	
Dunkirk, 20 dms.	
Pyrites — Huelva, 1,348 t. Matheson & Co.	
Rosin — New York, 250 brls.	
Brunswick, Ga., 3,707 brls.	
Baltimore, 617	
Salt — Hamburg, 100 bgs.	
Dunkirk, 100	
Soap — New York, 58 bbs.	
Philadelphia, 1,000 63 crts.	
Marseilles, 8 cs.	
Genoa, 50 P. S. Nav. Co.	
Leghorn, 25 bbs.	
Naples, 80 cs. Paul Behrends	
Smyrna, 46	
Constantinople, 1 sk.	
Patras, 470 qr.-cs.	
Soapstone — Genoa, 400 bgs. G. Huntriss & Co.	
" 500 W. Harrison & Co.	
" 400	
Starch — Amsterdam, 20 bbs.	
Newport News, 250 bgs.	
Rotterdam, 172 cs.	
Sulphur — Catania, 34 brls. 70 cks. 342 bgs.	
Tallow — New York, 100 tcs. Eastman's, Ld.	
Philadelphia, 250 tcs.	
Boston, 305 10 hds.	
Baltimore, 200	
Tartar — Naples, 1 ck.	
Bordeaux, 5 cks.	
Tartaric Acid — Rotterdam, 3 cks.	
Turpentine — Brunswick, Ga., 650 cks.	
Ultramarine — Rotterdam, 2 cks. 5 cs.	
Yarnish — New York, 4 brls. F. Crane, Chene & Co.	
" 1 cs. R. Tate	
Waste Salt — Hamburg, 172 t.	
White Lead — Rotterdam, 38 cks.	
Zinc Oxide — New York, 100 brls.	
Rotterdam, 75 cs.	

MANCHESTER.

Week ending June 30th.

Acetic Acid — Antwerp, 20 blns.	
Alum — Rotterdam, 15 cks. Simpson, Howden, & Co.	
Aniline Oil — Rotterdam, 6 cks. Simpson, Howden, & Co.	
Castor Oil — Rotterdam, 28 cks. 35 brls. Simpson, Howden, & Co.	
Colours — Rotterdam, 34 cs. 68 cks. Simpson, Howden, & Co.	
" 5 bbs. 20 cks. 18 cs. 9 brls. Wilson, Son, & Co.	
Treport, 4 cs. 11 cks.	
Antwerp, 29 brls.	
Dyestuffs — Alizarine Rotterdam, 2 cs. 40 brls. Wilson, Son, & Co.	
Extracts Antwerp, 6 brls.	
Indigo Rotterdam, 15 cs. Wilson, Son, & Co.	
Lead Acetate — Rotterdam, 34 cks. Wilson, Son, & Co.	
Limestone — Antwerp, 1 crt.	

Nitrate — Rotterdam, 8 cks. Simpson, Howden, & Co.	
Oxalic Acid — Rotterdam, 16 cks. Simpson, Howden, & Co.	
Soda — Rotterdam, 25 cks. Wilson, Son, & Co.	
Sodium — Rotterdam, 14 cks. Wilson, Son, & Co.	
Starch — Rotterdam, 120 cs. Wilson, Son, & Co.	
Antwerp, 80	
Tartaric Acid — Rotterdam, 9 cks. Wilson, Son, & Co.	
Tar Oil — Antwerp, 26 cks.	
Tin Perchloride — Antwerp, 2 cks.	
Waste Salt — Antwerp, 205 t.	
Wood Pulp — Skien, 1,247 bbls.	
Zinc Oxide — Antwerp, 12 brls.	

HULL.

Week ending June 30th.

Acetate — New York, 743 bgs. Wilson, Sons, & Co., Ltd.	
Acid — Hamburg, 20 pks. Wilson, Sons, & Co., Ltd.	
Alkali — Bremen, 2 pks. Veltmann & Co.	
Albumen — Libau, 4 cs.	
Barytes — Antwerp, 20 bgs. 42 cks. Bailey & Leatham	
Camphor — Hamburg, 1 ck. Wilson, Sons, & Co., Ltd.	
Chemicals (otherwise under.) — Rotterdam, 6 cks. 2 cs. Hutchinson & Son	
" 2 1 hmp. W. & C. L. Ringrose	
Stettin, 8 Wilson, Sons, & Co., Ltd.	
Hamburg, 2 Bailey & Leatham	
" 2	
Antwerp, 73 pks. Wilson, Sons, & Co., Ltd.	
Dunkirk, 37 pks. 1 cs. "	
Colours — Rotterdam, 23 cks. 11 cs. Hutchinson & Son	
" 70 pks. 27 6 W. & C. L. Ringrose	
" 4 Lofthouse & Saltmer	
Ghent, 9 Tudor & Sons	
Stettin, 12 Wilson, Sons, & Co., Ltd.	
Amsterdam, 2 kgs. W. & C. L. Ringrose	
Hamburg, 42 Wilson, Sons, & Co., Ltd.	
Bremen, 4 Veltmann & Co.	
" 9	
St. Petersburg, 2 cs. Wilson, Sons, & Co., Ltd.	
Hamburg, 1 Bailey & Leatham	
Cryolite — Copenhagen, 3 cks. Wilson, Sons, & Co., Ltd.	
Dextrine — Stettin, 300 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs — Alizarine Rotterdam, 10 brls. 1 bx. Hutchinson & Son	
" 19 cks. W. & C. L. Ringrose	
Cochineal Hamburg, 4 bgs. Wilson, Sons, & Co., Ltd.	
Indigo Rotterdam, 3 cs. J. Pyefinch & Co.	

Farina — Hamburg, 50 bgs.	
Ghent, 150 cs. Wilson, Sons, & Co., Ltd.	
Stettin, 1,802	
Harlingen, 1,100 pks. "	
Glucose — Stettin, 800 bgs.	
Paint — New York, 5 pks. Wilson, Sons, & Co., Ltd.	
Phosphate — Ghent, 81 t. 1,316 bgs.	
Pitch — Rotterdam, 50 cks. Hutchinson & Son	
Amsterdam, 1 W. & C. L. Ringrose	
Starch — Amsterdam, 10 cs. W. & C. L. Ringrose	
Antwerp, 136 Bailey & Leatham	
Bremen, 2,081 Veltmann & Co.	
Tar — Helsingfors, 83 brls. J. Good & Sons	
Tartaric Acid — Rotterdam, 2 cks. Woodhouse & Co.	
Tin Oxide — Rotterdam, 14 cks. Hutchinson & Son	
Turpentine — Savannah, 2,023 cks.	
White Lead — Rotterdam, 11 cks. 10 cs. Hutchinson & Son	
" 5	
" 13 Storry, Witty, & Co.	
Antwerp, 10 J. W. Davis & Son	
" 21 Bailey & Leatham	
Wood Pulp — Helsingfors, 25 bls. J. Good & Sons	
" 163 Furley & Co.	
Zinc Oxide — Rotterdam, 10 cks. John Burr	

GLASGOW.

Week ending July 5th.

Acetate of Lime — New York, 769 bgs.	
Alum — Hamburg, 161 cks.	
Ammonium Chloride — Rotterdam, 5 cks.	
Asbestos — Montreal, 224 bgs.	
Barium Sulphate — Antwerp, 300 bgs.	
Barytes — Rotterdam, 36 cks. 35 pks.	
Castor Oil — Antwerp, 56 cks.	
Caustic Magnesia — Hamburg, 25 cks.	
Colours — Rotterdam, 3 cks. 10 cs. J. Rankine & Son	
" 9 pks. 2 cks. 2 cs.	
Hamburg, 2 cs.	
Cottonseed Oil — New York, 100 brls.	
Creosote Salt — Hamburg, 2 crts.	
Dyestuffs — Alizarine Rotterdam, 116 cks. J. Rankine & Son	
" 45	
Extracts Bordeaux, 150 brls. G. Dickson	
Baltimore, 75 M'Arthur, Scott & Co.	
New York, 35 bbs.	
Madder Rotterdam, 6 butts. 6 cks. J. Rankine & Son	
Glucose — New York, 100 brls.	
Paint — New York, 2 brls. 1 kg.	

Painters' Colours — Antwerp, 3 cks.	
Paraffin Scale — New York, 130 brls.	
Phosphate — Bona, 100 t.	
Pitch — Antwerp, 10 cks.	
Potash — Rotterdam, 62 cks.	
Hamburg, 41	
Potassium Bromide — Hamburg, 5 cs.	
Pyrites — Huelva, 3,706 t. Tharsis Co	
Rosin — New York, 4,815 brls.	
Baltimore, 640	
Saltpetre — Hamburg, 100 kgs. 24 cks.	
Soap — New York, 25 cs.	
Sodium Salicylate — Hamburg, 1 cs.	
Starch — Bordeaux, 20 bgs. Wm Stirling & Son	
" 30	
New York, 900 bbs.	
Rotterdam, 60 cs.	
Amsterdam, qty.	
Sulphur — Bordeaux, 500 bgs. T. Lawrie	
" 507	
Tallow — New York, 50 hds. 20 tcs.	
Tartar — Bordeaux, 3 brls. 3 cks.	
Varnish — New York, 114 cs. 2 brls.	
Waste Salt — Hamburg, 305 t.	
White Lead — Rotterdam, 83 cks.	
Whiting — Dieppe, 12½ t.	
Wood Pulp — New York, 657 rills.	
Oporto, 500 bls.	
Montreal, 294 A. G. Kidston & Co.	
Christiania, 534	
Hommelvik, 1,500	
Zinc Oxide — Antwerp, 50 cks.	
Rotterdam, 15	
Zinc Sulphate — Nantes, 30 cks.	
Zinc White — Rotterdam, 250 cks. J. Rankine & Son	

TYNE.

Week ending June 30th.

Barytes — Antwerp, 72 cks. Tyne S. S. Co.	
Carbonic Acid Gas — Rotterdam, 50 tubes. Tyne S. S. Co.	
Limestone — Antwerp, 3 crts. Tyne S. S. Co.	
Paint — Arendal, 3 tins.	
Phosphate — Antwerp, 460 t.	
Terneuzen, 320	
Potash — Rotterdam, 4 cks. Tyne S. S. Co.	
Pyrites — Huelva, 3,183 t. Scott Bros.	
Salt — Hamburg, 180 t. Clephans & Wiencke	
Saltpetre — Hamburg, 20 kgs.	
Saltpetre Salt — Hamburg, 210 t.	
White Lead — Antwerp, 9 brls. Tyne S. S. Co.	

GOOLE. <i>Week ending June 27th.</i>		Ghent, 2 Boulogne, 7 6 cs.		Potash— Rotterdam, 4 cks. Calais, 21 dms. Dunkirk, 70		GRIMSBY. <i>Week ending June 30th.</i>	
Alkali— Hamburg, 10 cks.		Extracts— Ghent, 140 cks.		Saltpetre— Rotterdam, 100 bgs.		Caoutchouc— Antwerp, 12 cs. Rotterdam, 1 pke.	
Antimony— Boulogne, 2 cs.		Logwood— St. Thomas, 378 t. Belize, 420		Sodium Silicate— Rotterdam, 4 cks.		Chemicals (otherwise undescribed) Hamburg, 20 pks.	
Dyestuffs (otherwise undescribed) Rotterdam, 3 cks. 148 pks.		Ochre— Rouen, 104 cks.		Waste Salt— Hamburg, 1,298 cks. 500 bgs.		Dyestuffs (otherwise undescribed) Dieppe, 11 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending July 4th.</i>		Coal Products— Alizarine St. Petersburg, 8 cs. £500 Aniline Melbourne, 2 cs. £16 Benzol Terneuzen, 20 dms. £134 Havre, 8 cks. 20 Treport, 41 165 Boulogne, 55 256 Coal Tar Dyes Boston, 4 pks. £43 Creosote Calais, 10 brls. £95 Naphtha Melbourne, 40 dms. £26 Adelaide, 10 13 Pitch Varna, 60 brls. £16 Dordt, 270 t. 405 Genoa, 1,378 1,860 Antwerp, 250 350 Boston, 150 brls. 70 Pyridine Bases Amsterdam, 2 dms. £54 Tar Algoa Bay, 225 dms. £16 Natal, 150 13 Wellington, 25 5 Boston, 350 brls. 162 Napier, 25 6 Calcutta, 20 rmlts. 24 Coal Products (otherwise undes.) Melbourne, 12 dms. £7 Copperas— Gibraltar, 6 t. 8 c. £19 Copper Sulphate— Oporto, 1 t. £17 Naples, 1 13 c. 24 Leghorn, 5 80 Paris, 5 80 Sydney, 5 80 Genoa, 19 6 276 Cream of Tartar— Brisbane, 11 c. £34 Sydney, 3 t. 235 Gothenburg, 3 9 Auckland, 10 38 Wanganui, 7 pks. 21 Melbourne, 10 32 Disinfectants— Brisbane, 40 dms. £43 Singapore, 14 pks. 21 Calcutta, 150 14 Gibraltar, 3 13 Hong Kong, 15 21 Dried Blood— Treport, 30 t. £372 Iodine— B. Ayres, 1 kg. £38 Manure— Malaga, 21 t. 8 c. £190 Motril, 145 13 1,305 Salobrena, 72 16 655 Antigua, 13 19 180 Alexandria, 1 6 Memel, 600 2,093 Libau, 250 1 598 Bluff Harbour, 20 32 Demerara, 30 102 Mauritius, 8 19 246 Muriate of Lime— Sydney, 11 t. 8 c. £50 Muriatic Acid— Demerara, 40 cbys. £7 Oxalic Acid— Newcastle, 1 t. 5 c. £43 M. Videan, 1 ck. 11 Lisbon, 4 6 Phosphoric Acid— Boulogne, 5 c. £18		Potassium Chlorate— Brisbane, 5 c. £15 Algoa Bay, 4 11 Odessa, 1 t. 69 Madras, 4 13 Potassium Cyanide— Brisbane, 10 cs. £58 Melbourne, 1 14 New York, 1 t. 196 Potassium Iodide— Cape Town, 1 cs. £38 Melbourne, 1 c. 61 Saltpetre— Oporto, 1 t. 9 c. £31 Valencia, 1 15 16 S. Michaels, 10 10 Rio de Janeiro, 9 16 230 E. London, 11 13 Algoa Bay, 13 16 Sheep Dip— Cape Town, 150 cs. £300 E. London, 300 600 Durban, 300 600 Port Elizabeth, 400 800 Sydney, 185 pks. 2 t. 5 c. 25 cs. 270 Natal, 19 45 Soda— Rouen, 1 t. 2 c. £8 Soda Crystals— Constantinople, 16 t. £60 B. Ayres, 4 18 c. 11 Sodium— New York, 2 t. 10 c. £448 Sodium Acetate— Melbourne, 1 t. £30 Sodium Bicarbonate— Melbourne, 5 t. 14 c. £30 Sodium Hyposulphite— Brisbane, 1 t. £6 Sodium Oxide— New York, 1 t. 5 c. £140 Sodium Salicylate— Bombay, 1 cs. £11 Sodium Silicate— Melbourne, 5 t. 1 c. £24 Sodium Sulphate— Norrkoping, 285 t. £485 Sodium Tartrate— Adelaide, 10 c. £30 Sulphur— Wellington, 2 t. £18 E. London, 50 cks. 44 Cape Town, 140 120 kgs. 187 Sulphuric Acid— Singapore, 12 dms. £12 Penang, 1 t. 5 c. 13 Cape Town, 2 18 Superphosphate— Riga, 300 t. £800 Tartaric Acid— Brisbane, 5 c. £24 Victoria, B.C., 2 10 Adelaide, 3 13 Napier, 6 23 Wanganui, 2 cs. 7 M. Videan, 1 ck. 26 Rio de Janeiro, 5 26		Aluminoferrie— Kingston, 10 t. 7 c. £40 Ammonium Carbonate— Bombay, 18 c. £30 Amsterdam, 5 8 St. Petersburg, 5 t. 5 187 Nantes, 1 33 Ammonium Chloride— Patras, 3 c. £5 Montreal, 1 t. 2 27 Alexandria, 15 brls. 54 Varna, 6 10 Philadelphia, 5 5 192 St. Petersburg, 1 8 3 q. 36 Tampico, 3 6 Smyrna, 9 17 Ammonium Sulphate— Demerara, 54 t. 3 c. 2 q. £783 Sourabaya, 367 18 5,186 Alicante, 5 2 70 Gd. Canary, 39 18 570 Malaga, 100 19 1 1,412 Valencia, 82 14 1 1,153 Antimony— Pernambuco, 3 c. Arsenic— Calcutta, 5 t. 11 c. 2 q. £80 Asbestos— B. Ayres, 1 bl. 3 cs. Barytes— Lisbon, 150 kgs. Bleaching Powder— Boston, 364 cks. Montreal, 53 New York, 128 50 bxs. San Francisco, 10 brls. 15 20 dms Adelaide, 7 B. Ayres, 8 cks. Calcutta, 125 cs. Genoa, 141 Havre, 16 Leghorn, 34 Messina, 11 Naples, 47 Palermo, 5 brls. Philadelphia, 46 Rouen, 29 Borax— Piræus, 9 c. £10 Hamburg, 1 t. 3 30 Rotterdam, 11 14 Stettin, 5 100 Yokohama, 6 10 Rouen, 6 135 Barranquilla, 6 1 q. 11 Calcium Chloride— New York, 12 t. 12 c. 2 q. £33 Carbolic Acid— Bombay, 4 cks. 1 t. 2 c. £41 Hamburg, 4 15 N. Orleans, 1 15 3 q. 138 Calcutta, 2 cs. 31 Castor Oil— Honolulu, 15 cs 10 brls. Caustic Potash— San Francisco, 1 t. 18 c. £44 New York, 13 2 341 Wellington, N.Z., 5 7 Caustic Soda— Adelaide, 24 dms. Algoa Bay, 20 6 cs. Amsterdam, 227 Boston, 59 Calcutta, 170 Callao, 60
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LIVERPOOL.

Week ending July 4th.

Alum— Melbourne, 3 t. 10 c. £24 Bombay, 12 4 65 Bahia, 1 7 Syra, 2 2 q. 10	
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Settin,	40	20
Tampico,	10	
Toronto,	60	10
Sodium Bichromate —		
B. Ayres,	1 ck.	
Sodium Chlorate —		
St. Petersburg,	40 kgs.	
Antwerp,	10	
Genoa,	10	
Hamburg,	10	
Rotterdam,	10	
Sodium Silicate —		
Adelaide,	57 cks.	
Alicante,	32	
Newcastle,	20	
Oporto,	12	
Para,	50	
Piræus,	16	
Santander,	30	
Sodium Sulphate —		
Rio de Janeiro,	45 kgs.	
Vera Cruz,	10 cks.	
Stearine —		
Pernambuco,	20 cks.	
Sulphur —		
Boston,	200 t. 8 c.	£652
N. Orleans,	2	11
Philadelphia,	5	10
Superphosphate —		
Gd. Canary,	29 t. 10 c.	£91
Nantes,	109 t. 9	256
Stettin,	1,503 5	4,005
Turpentine —		
Havre,	50 dms.	£21
Uramarine —		
Yokohama,	6 brls.	
Yarnish —		
Leghorn,	2 cs. 1 ck.	
Liabon,	1	
Montreal,	11	2 dms.
Oporto,	2	
Algoa Bay,	3	
Genoa,	2	6 pkgs. 6 brls.
Rotterdam,	2	
Seville,	2	6 cks.
White Lead —		
Calcutta,	20 kgs.	
Cartagena, N.G.,	145	
Ghent,	7 c.	
Santander,	7 cks.	
Whiting —		
Shanghai,	10 cks.	
Valparaiso,	50 brls.	
Zinc Chloride —		
Bombay,	12 t. 13 c.	£212

MANCHESTER.

Week ending July 5th.

Ammonium Sulphate —		
Valencia,	422 bgs.	
Chemicals (otherwise undescribed)		
Hamburg,	12 cks.	
Rotterdam,	15	
Colours —		
Rotterdam,	3 cks.	
Pitch —		
Antwerp,	50 t.	
Salt Cake —		
Antwerp,	100 t.	
Soap —		
Alexandria,	1 cs.	
Sodium Sulphate —		
Antwerp,	100 t.	
Tallow —		
Rotterdam,	16 cks.	

HULL.

Week ending June 30th.

Alkali —		
Hango,	6 cks.	
Ammonium Sulphate —		
Rotterdam,	200 bgs.	
Bleaching Powder —		
Riga,	35 cks.	
Stettin,	62	
Borax —		
Antwerp,	32 cks.	
Rotterdam,	18	
Stettin,	11	
Caustic Soda —		
Abo,	1 ck. 50 dms.	
Hango,	1	
Helsingfors,	4	
Wasa,	50	
Wyburg,	10	

Chemicals (otherwise undescribed)

Abo,	1 ck.	
Bergen,	2 cs. 17 pks.	
Christiania,	4	2,184 slbs.
Dunkirk,	27	3 pks.
Gothenburg,	15	52
Hamburg,	3	130 2
Harlingen,	20	1
Helsingfors,	1	
Konigsberg,	30	5
Libau,	40	250
New York,	9	100
Riga,	17	
Rouen,	17	
St. Petersburg,	30	
Stettin,	4	pkgs.
Uleaborg,	25	
Wasa,	10	
Wyburg,	10	

Cottonseed Oil

Antwerp,	202 c.	
Bremen,	18	
Christiania,	100	
Drontheim,	40	
Gothenburg,	120	
Hamburg,	491	
Konigsberg,	119	
Rotterdam,	490	
Stockholm,	34	
Stavanger,	34	

Dyestuffs (otherwise undescribed)

Amsterdam,	1 ck.	
Christiania,	100 bls.	
Danzig,	1	
Rotterdam,	1 cs.	
Rouen,	10	
St. Petersburg,	5	

Linseed Oil

Antwerp,	100 c.	
Bergen,	200	
Christiania,	525	
Christiansund,	32	
Drontheim,	189	
Rotterdam,	100	
Stavanger,	128	

Manure

Danzig,	98 t.	
Pensacola,	443	

Paint

Helsingfors,	15 cks.	
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Painters' Colours

Antwerp,	85 cks.	
Amsterdam,	3	
Bergen,	3	
Copenhagen,	2	1 cs.
Christiania,	17	2
Christiansund,	56	pkgs.
Christiansand,	36	kgs.
Danzig,	24	1
Gothenburg,	3	
Hamburg,	4	5 dms.
Helsingfors,	10	
Konigsberg,	10	
New York,	30	
Rotterdam,	24	1
Riga,	2	
Rouen,	16	
Stockholm,	1	1
Stettin,	87	1 pkge.
Stavanger,	20	

Pitch

Copenhagen,	1 cs.	
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Slag

Gothenburg,	99 t.	
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Soap

Antwerp,	10 cs.	
Stockholm,	1	

Superphosphate

Kastrup,	450 t.	
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Tallow

Rotterdam,	43 cks.	
Wasa,	83	

Tar

Abo,	10 cks.	
Danzig,	11	
Gothenburg,	5	
Ghent,	2	
Helsingfors,	140	
Wasa,	60	

Yarnish

Antwerp,	4 cks. 1 cs.	
Copenhagen,	4	2
Drontheim,	1	
Ghent,	2	
Harlingen,	1	
Rotterdam,	5	

Whiting

Hamburg,	20 bls.	
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GLASGOW.

Week ending July 5th.

Ammonium Chloride —		
Italy,	£51	
Ammonium Sulphate —		
Hamburg,	50 t. 17 c.	£661
Bleaching Powder —		
Bombay,	3 t. 2½ c.	£35. 108.
Philadelphia,	19	18¾ 170
Chloroform —		
Bombay,	2 c.	£25 148.
Coal Products —		
Pitch		
Montreal,	40 t. 15¾ c.	£85
Gothenburg,	66	6¼ 16
Amsterdam,	200	
Rotterdam,	160	
Canada,	160	150
New York,	109	4
Tar		
Philadelphia,	24 t. 10 c.	£55
Canada,	23	14
Calcutta,	760	
Dyestuffs —		
Extracts		
Montreal,	14 t. 8 c.	£474
Fastie Extract		
Montreal,	4 t. 1 c.	£159
Logwood		
Montreal,	6 t. 4¼ c.	£51
Lead Acetate —		
Calcutta,	3 t. ¾ c.	£90
Bombay,	4	2½ 58
Linseed Oil —		
Alexandria,	2 t. 8¼ c.	£52
Magnesium Sulphate —		
Bombay,	20 t. 2 c.	£75
Manganese —		
Antwerp,	11 t. 9 c.	£90
Paint —		
Alexandria,	3 t. 1 c.	£57
Bombay,	10	203
St. John's, Nfld.,	1	15¾ 32
Painters' Colours —		
Calcutta,	2 t.	£45
Brasil,	71	
Amsterdam,	4 cks.	15
Montreal,	21	
Hamilton,	2	16¼ c. 89
Paraffin Wax —		
France,	6 t. 9¾ c.	£165
Italy,	9	15¾ 277
Austro Hungary,	30	705
Potash Salts —		
Madras,	5 t. 16 c.	£527
Potassium Bichromate —		
France,	4 t. 12¾ c.	£175
Amsterdam,	12 cks.	201
Philadelphia,	13 t. 14¼	544
Italy,	19	6 775
Montreal,	3	18¼ 156
Antwerp,	5	¾ 200
Potassium Prussiate —		
New York,	9 t. ¾ c.	£762
Rosin Oil —		
Montreal,	3 t. 11¼ c.	£39
38		
Slag —		
Amsterdam,	237 t.	£82
Rotterdam,	295	102
Soda Ash —		
New York,	16 t. 2 c.	£56
Sodium Bichromate —		
France,	14 t.	£220
Italy,	22	4 810
Montreal,	19	70
Sodium Phosphate —		
New York,	8 t. 17 c.	£94
Sulphuric Acid —		
Madras,	5 t. 12¼ c.	£26
Tallow —		
Rotterdam,	8 t. 11 c.	£385

TYNE.

Week ending June 30th.

Alkali —		
Hamburg,	2 t. 4 c.	
Antwerp,	5	6
Rotterdam,	2	2
Ammonium Sulphate —		
Dunkirk,	44 t.	
Valencia,	45	2 c.
Rotterdam,	30	4
Antimony —		
Hamburg,	1 t.	
Antwerp,	2	¾ c.
Bergen,		

Barytes Carbonate

Libau,	5 t.	
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Bleaching Powder

Antwerp,	11 t. 3 c.	
Copenhagen,	1	10
Libau,	25	4
Rotterdam,	14	2
Genoa,	6	7
Drontheim,	10	2

Caustic Soda

Spezia,	2 t. 16 c.	
Hamburg,	32	15
Antwerp,	19	17
Aarhus,	1	4
Copenhagen,	2	18
Rotterdam,	10	3
Genoa,	48	5

Colours

Copenhagen,	3 c.	
Rotterdam,	11	

Litharge

Dunkirk,	1 t. 16 c.	
Hamburg,	1	2

Magnesia

Hamburg,	11 c.	
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Ochre

Christiania,	5 t. 12 c.	
Drammen,	2	

Paint

Antwerp,	10¼ c.	
Bergen,	9	

Phosphorus

Valencia,	2 t. 1 c.	
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Slag

Rotterdam,	242 t.	
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Soda

Ergasteria,	11 c.	
Odense,	10 t. 7	
Christiania,	11	7
Rotterdam,	10	3
Genoa,	32	4
Christiansund,	5	4
Drammen,	50	

Soda Ash

Hamburg,	32 t. 18 c.	
Christiania,	13	

Sodium Hyposulphite

Antwerp,	5 t.	
Christiania,	10 c.	

Sodium Silicate

Hamburg,	3 t. 1 c.	
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Sodium Sulphate

Bornas,	430 t. 9 c.	
Gothenburg,	169	12

Sulphur

Oscarshamn,	98 t.	
Christiania,	300	
Gothenburg,	65	

White Lead

Copenhagen,	16 c.	
Drammen,	3	
Gothenburg,	4 t. 9	

GOOLE.

Week ending June 27th.

Alkali —		
Dunkirk,	30 dms.	
Chemicals (otherwise undescribed)		
Boulogne,	2 cks. 2 cs.	
Hamburg,	2	
Rotterdam,	96	
Coal Tar Products (otherwise undescribed)		
Antwerp,	388 bgs.	
Boulogne,	48 cks. 3 dms.	
Ghent,	2	
Hamburg,	62	3 cs.
Rotterdam,	1	
Dyestuffs (otherwise undescribed)		
Hamburg,	45 cks.	
Manure —		
Boulogne,	387 bgs.	
Rotterdam,	185	
Pisch —		
Antwerp,	346 t.	

GRIMSBY.

Week ending June 30th.

Caoutchouc —		
Malmo,	1 bl.	
Chemicals (otherwise undescribed)		
Antwerp,	7 cks.	
Hamburg,	20	

PRICES CURRENT.

WEDNESDAY, JULY 11th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	&	10/6
Glacial				50/-
Arsenic S.G., 2000°		0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.		0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous		0	0	1 3/4
Oxalic	nett	0	0	3 3/4
Phosphoric, 1750°		0	1	0
Picric		0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)		5	10	0
(Pyrites, 168°)		3	0	0
(free from arsenic, 145°)		1	5	0
Sulphurous (solution) S.G. 1025		3	0	0
Tannic (pure)	per lb.	0	1	1
Tartaric		0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)		5	2	6
Alumina Sulphate (pure)		5	0	0
Aluminoferri		2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous		0	1	4
880=28° B.	per lb.	0	0	3
=24° B.		0	0	2 3/4
Carbonate	nett	0	0	3 3/4
Muriate	per ton	24	10	0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
Nitrate	per ton	44	0	0
Phosphate	per lb.	0	0	10 1/2
Sulphate (grey) London	per ton	13	17	6
(grey) Hull		13	17	6
Aniline Oil (pure)	per lb.	0	0	5 1/2
Aniline Salt		0	0	5 1/2
Antimony	per ton	32	0	0
(tartar emetic)	per lb.	0	0	9 3/4
(golden sulphide)		0	0	10
Barium Chloride	per ton	6	10	0
Carbonate (native)		3	10	0
Sulphate (native levigated)		45/-	to	75/-
Bleaching Powder, 35 %	nett	7	10	0
Liquor, 7 %		3	10	0
Bisulphide of Carbon		11	15	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk		17/6	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta		0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90 % nominal	per gallon	0	0	11 1/2
50/90		0	1	1 1/2
Carbolic Acid (crystallised 40°)	per lb.	0	1	6 1/4
(crude 60°)	per gallon	0	1	9
Creosote (ordinary)		0	0	1 3/4
(filtered for Lucigen light)		0	0	3
Crude Naphtha 30 % @ 120° C.		0	0	5 3/4
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston		1	11	6
Solvent Naphtha, 90 % at 160°	per gallon	0	1	4 1/2
Lucigen and Wells Oils		0	0	2 1/2
Copper	per ton	38	8	9
Sulphate		14	7	6
Oxide (copper scales)		39	5	0
Glycerine (crude)		15	0	0
(distilled S.G. 1250°)		41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	4	0
Sulphide (antimony slag)		2	0	0
Lead (sheet) for cash		10	15	0
Litharge Flake (ex ship)		13	0	0
Acetate (white)		25	0	0
brown		15	15	0
Carbonate (white lead) pure		20	0	0
Nitrate		19	10	0
Lime, Acetate (brown)	per ton	5	17	6
(grey)		10	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	10	0
Carbonate	per cwt.	1	17	6
Hydrate	per ton	17	0	0
Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate		17	15	0
Borate	per cwt.	2	12	6
Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.F.	per gallon	0	2	2
Naphtha (Wood), Solvent		0	3	7
Miscible, 60° O.F.		0	4	2
Oils:—				
Cotton-seed	per ton	21	0	0
Linseed		22	10	0
Petroleum, American	per gallon	0	0	5 1/4
Stearine	per ton	27	0	0
Phosphorus (yellow)	per lb.	0	2	2
(red)		0	2	9
Potassium (metal)	per oz.	0	3	7
Bichromate	per lb.	0	0	4 1/2
Carbonate, 90% (ex ship)	per ton	16	15	0
Chlorate	per lb.	0	0	7
Cyanide, 98%		0	2	3
Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0
(Caustic Potash) 75/80 %		20	0	0
(Caustic Potash) 70/75 %		19	10	0
Nitrate (refined)	per cwt.	1	2	6
Permanganate	per cwt.	3	2	6
Prussiate Yellow	per lb.	0	0	10 1/2
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)		8	7	6
Silver (metal)	per oz.	0	2	4 1/2
Nitrate		0	2	10
Sodium (metal)	per lb.	0	3	0
Carb. (refined Soda-ash) 48 %	nett per ton	4	17	6
(Caustic Soda-ash) 48 %		4	2	6
(Carb. Soda-ash) 48 %		4	0	0
(Alkali) 58 %		3	15	0
(Soda Crystals)		2	10	0
Acetate (ex-ship)		14	15	0
Arseniate, 45 %		17	0	0
Chlorate	per lb.	0	0	8 1/4
Borate (Borax)	net, per ton	22	0	0
Bichromate	per lb.	0	0	3 3/4
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	10	15	0
(74 % Caustic Soda)		9	15	0
(70 % Caustic Soda)		8	15	0
(60 % Caustic Soda)		7	15	0
(60 % Caustic Soda, cream) (f.o.b.)		7	12	6
Bicarbonate		5	12	6
Hyposulphite		5	10	0
Manganate, 30%		16	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	1 1/2
Nitrite, 98 %	per ton	29	10	0
Phosphate		15	0	0
Silicate (glass)	per ton	5	7	6
(liquid, 100° Tw.)		4	5	0
Stannate, 40 %	per cwt.	3	0	0
Sulphate (Salt-cake)	per ton	0	17	6
(Glauber's Salts)		1	5	0
Sulphide		8	10	0
Sulphite		5	12	6
Strontium Hydrate, 100%		8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/4
Barium, 95 %		0	6	5
Potassium		0	0	7 1/2
Sulphur (Flowers)	per ton	7	5	0
(Roll Brimstone)		5	7	6
Brimstone: Best Quality		3	15	0
Superphosphate of Lime (26%)		2	7	6
Tallow		25	0	0
Tin Crystals	per lb.	0	0	6
English Ingots		71	10	0
Zinc (Spelter)	per ton	16	0	0
Chloride (solution, 96° Tw.)		5	10	0

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

SOCIETY OF CHEMICAL INDUSTRY.

THE programme for the annual general meeting of this Society, which was held in Edinburgh, on Wednesday last and the two following days, gave promise of a most enjoyable meeting. Though the weather was not over propitious, the whole affair seems to have passed off successfully. A feature of the first day was the arrangement of walks in Old Edinburgh. Late in the afternoon, Sir James Russell, the Lord Provost, gave a garden party at Woodville, and in the evening the usual reception and conversazione was held by the Lord Provost and the magistrates in the Museum of Science and Art. The presidential address by Mr. E. C. C. Stanford, which naturally was the most important feature of the first day of direct interest to the members, we have not referred to here, as it is dealt with elsewhere in these columns in our report of the proceedings of the three days of the meeting. The social arrangements for the third, and, as it is sometimes termed, the ladies' day, were also most satisfactory, while in addition the Ladies' Committee arranged a reception and conversazione in the Victoria Hall, which was held at the same time as the male members were occupied in the all-absorbing task of devoting themselves to the annual dinner of the Society at the Waterloo Hotel. Altogether the meeting was a success, despite the unpleasant weather.

THE WEAVER TOLLS.

A question of considerable interest to the chemical trade has recently been discussed before the Duke of Richmond's Joint Committee in the shape of the Weaver Navigation Tolls, the discussion having arisen out of the new schedule of tolls drawn up by the Board of Trade, which proposed to substitute a mileage rate for the old gross maximum toll of one shilling, irrespective of distance.

The trustees, judging from the attitude they take, seem to be fighting for what they consider a "living toll." They contend there is no just cause to assume that with a cheaper toll more traffic will pass over the Canal, while the falling off in their income, owing to the quantity of white and rock salt carried having decreased considerably, is held to be a good reason why the old rates should remain in force. Failing this, the trustees hold out for a modified mileage rate which would cause the Northwich and Winsford traders to pay equal amounts.

The representatives of the chemical trade, however, on the other hand, naturally are opposed to the toll for alkali being raised from its present figure, which is eightpence, to the trustees' maximum of one shilling. They contend that while only too anxious to avoid preventing the trustees earning an income sufficiently large to meet the cost of the extensions and repairs they deem necessary, nevertheless, in their opinion, the Board of Trade schedule leaves an ample margin for such purposes. Under this schedule the rate for alkali will be raised from 8d. to 8½d., but to give the trustees power to raise the rate to one shilling is quite another matter.

Taking into consideration the advantage being offered by the Ship Canal Company in the shape of through rates, which manufacturers might avail themselves of in the event of the maximum tolls being imposed, it would seem rather unwise on the part of the trustees to press their claims too hard.

There is one compulsory action which Parliament laid in time past upon the trustees, however, which was, that they

were bound to contribute a certain amount of their surplus income to the Cheshire County Council for the relief of rates. On this account the County Council were inclined to consider the schedule of the Weaver Trustees as reasonable. This point seems to have carried much weight with the Joint Committee of the two Houses of Parliament, before whom the evidence of both sides was heard. At all events the outcome of the consultation which the chairman held with his committee was that they were inclined to support the amendment of the trustees to revert to the *status quo ante*, and they accordingly announced that they had decided to accept the schedule of the Weaver Trustees and to reject the Board of Trade Bill.

SOCIETY OF CHEMICAL INDUSTRY.

ANNUAL GENERAL MEETING.

THIS took place on Wednesday, the 18th inst., in Queen-street Hall, Edinburgh, when there was a fair muster.

THE PRESIDENT'S ADDRESS.

Wednesday 18th: First Day.—The main feature of the meeting, though not the first in the order of priority, was the address of Mr. E. C. C. Stanford, the retiring president of the Society. His vein was a jocular one chiefly, greatly relished by those present, but there was much weighty and suggestive matter as well. He thought the Society

members residing in all parts of the world. Their rolls showed 123 on the Continent, 103 in the Colonies, and 21 in Japan, but now for the first time they were to have a section outside of our own borders in that of New York just proposed. This was a great step. Times had altogether changed for the industrial chemist. It had once been asserted that for him a knowledge of chemistry was a disadvantage, but now not only was that exploded, but we had travelled well on toward the opposite extreme. The chemist had not only to understand chemistry, but he had to be an engineer, electrician, and specialist in no end of forms. The tools he worked with had developed into innumerable intricate appliances, and these he had to master and understand. There was within the industry no success now due to ignorance of chemistry, as had been formerly asserted. Still, chemical research might not be immediately successful in the gross sense of money accumulation, but he would affirm that nothing ultimately pays better than original research. Take the history of sulphur recovery as an instance. Weldon did not make much money by his researches, but he enriched the world, and it was well said that there was not now a yard of calico or a ream of paper which he had not cheapened. Renowned chemists, more than any other celebrities, had worked to enrich the world rather than themselves. But chemical research required stimulant, and he would like to see their society instituting prizes for the promotion of original research, under certain well-considered rules and regulations. He thought that this would be a salutary opening for the growing energies and powers of the society. It had been tried in France and found to be a valuable accessory all round. The society should be made more attractive to the young chemists of the rising generation, after the manner of the Insti-



had a right to plume itself on the position to which, by rare management, its Journal had attained. There was no trade or industry which did not find itself catered for in its pages, and he dared to say that as the organ and mouthpiece of applied chemistry it had no equal in the world. But though in this respect the society and the country had reason to be proud, we were in this country woefully behind in organic chemistry; and when we compared our puny efforts with those of communities which were but mere fractions in regard to size and population, we had too good cause to hang our heads. He would point to what the little Swiss town of Zurich had done, and ask if there was not ample store of discredit for us in the comparison. We had something to our credit in this connection, thanks to the recent action of Dr. Mond, and for this too much praise could not be paid. There was due to the new movement the heartiest wish for success on the part of all, and he would say that it would hardly be possible to overestimate the ultimate national benefit which would accrue. The growth of their own society was a subject of most legitimate satisfaction. It possessed

tute of Engineers; and, as a means to that end, it might be worth while procuring a Royal charter. Their society had brought to bear, and was further bringing its influence to bear, on various movements. The reform of the Patent Laws had been brought nearer by their action, and he thought they might now count on the appointment of a Royal Commission of Inquiry in that connection. It was scandalous that foreigners should be permitted to take out patents in this country, not for the manufacture of the specialités here, but for the direct object of making sure that they would *not*, and *could not*, be manufactured here. Another of their agitations was that pertaining to

THE FLASH-POINT OF MINERAL OILS.

Fancy our Government safeguarding their own immediate staff and servants by forbidding them the use of any oil with a lower flash-point than 105°F. (Abel), and yet by their action tying down the humbler of the lieges to the use of an oil of the dangerously low flash-point of 73°F.; thereby providing the United States of America

with a profitable *coup* for the unsafe oils their own Government forbade them to burn at home! It was also a grievous anomaly that manufacturing chemists in this country, by the regulations of its own rulers, could not possess themselves of pure spirit without paying a heavy duty for it. Owing to the flight of time, the President found that his further remarks would have to be greatly condensed, and so rapidly ran over the possible substitutes of coal as a prime mover, and instanced electricity (after further expected discoveries), waterfalls, rivers, tides, waves, and winds. Coal was bound to become exhausted in time, but it was possible that the discovery might be made that the natural formation of petroleum was a continual process. He then reverted to the chemistry of sea water, promising members some surprising elucidation on this point when they visited his friend Dr. Irvine's marine station at Granton. He wound up a very successful address by a warm eulogy in praise of these annual gatherings, declaring that every chemical operator had something to learn from each other, so numerous and diverse were the avenues of research into which by an inevitable law they were individually led, after a certain number of years. On the motion of Professor Thorpe, the President-elect, an enthusiastic vote of thanks was passed to Mr. Stanford.

members had been billed for a start, in coaches to Rosslyn Chapel, Dalkeith Palace, and other points of interest. There was no other hitch, and the meeting was on the whole a harmonious one.

The members who had not gone on the excursion mentioned above visited the works of Messrs. Cowan and Sons, Limited, and James Brown and Co.

MESSRS. J. BROWN AND COMPANY, LIMITED.

The paper mills of this Company, known as the Esk Mills, are situated in the beautiful valley of the North Esk, about three miles above the well-known and picturesque scenes of Roslin and Hawthornden, and within eight miles from Edinburgh. Like most "old" mills, it is situated in a deep hollow close to the edge of the stream. A branch of the North British Railway passes close by, with a siding into the mill for goods, and a passenger station a few yards off. The chief raw material employed is esparto grass, from every two tons of which, after treatment, about one ton of paper is produced. The attention of the members was principally directed to the methods employed for preventing river pollution with the waste esparto liquors, the treatment of which is under the personal supervision of Dr. Macadam.



THE BUSINESS OF THE MEETING.

An invitation by the Yorkshire section to appoint Leeds for next year's annual general meeting was accepted. The President and new members of the Council were elected as suggested on the ballot list without alteration.

Two items of the proposed alterations in the bye-laws of the Society provoked no little antagonistic comment. The first (clause 8) was that enacting that an entrance fee of one guinea for new members should be instituted. The proposal was defended eloquently from the platform on the argument that a section of the membership set too little store by their privileges, and out of mere carelessness permitted their names to be deleted in default of renewal of subscription. This entrance fee would cure that, and, it was calculated, would do away with over thirty of these deletions annually. The journal alone was worth double the amount of the whole annual subscription. A still stronger objection was raised to clause 12 of the alteration, decreeing that sections should not communicate with outside bodies without first procuring the consent of the Central Council. This was almost vehemently condemned by several members in the body of the hall, and as earnestly justified by speakers on the platform, rendering it necessary to take decision by show of hands, when the innovation was carried by a small majority. It was owing to so much time being occupied over these two points that the President was compelled to hurry over the second and more technical portion of his address, as

The second day was devoted as usual to visiting a number of works, of which we give a brief account of the more interesting and most closely allied to the chemical industries.

FIRE CLAY WORKS OF THE LOTHIAN COAL COMPANY.

Thursday 19th : Second Day.—These are most pleasantly situated a few miles to the south of Edinburgh, and less than two miles from the classic Hawthornden. The fire clay manufacture here is of considerable standing as to time, having been in operation between 30 and 40 years. At the brickwork section, which is extensive, the plant includes two brickmaking machines, semi-dry, these being capable of turning out daily from 17,000 to 18,000 bricks. In addition to these machine-made products, bricks are also made by hand. Here also is to be seen machinery for the manufacture of fire-clay pipes, etc. For the burning of the bricks a large Hoffman kiln has been in operation during many years, and there are also kilns for burning fire-clay pipe, &c. Other subsidiary classes of brick and fireclay finishing machinery are in efficient supply, and the works are in all respects fully equipped according to the latest of those new methods which have stood the test of practice. About 200 men are employed in this special department of the company's operations, and their strength is sometimes very fully taxed in the fulfilment of the orders booked, which are numerous.

WILLIAM TAYLOR & CO., BROUGHTON SOAP WORKS

This factory is of many years recognised standing in the soap-making industry, having been established between 70 and 80 years ago by the original founder. The premises of the firm were originally in Leith, and they remained there for the long period of about 65 years. About 11 years ago Leith was given up altogether, so far as the manufacture itself was concerned, an excellent site for a factory of the sort having been acquired in the Broughton suburban quarter of Edinburgh. The Broughton district is on the north-east border of Edinburgh, or that which is nearest to Leith, so that while the new works of the firm are conveniently situated for immediate business with Edinburgh, they are right on the track of two of the chief railway systems of the quarter, and at the same time easy of access to the loading quays of the docks and Port of Leith. Granton also, which may be called the second Port of Edinburgh, is only a short distance off the north-west. The new equipment of their factory, consequent on this change of locality, was eleven years ago carried out by the firm on a greatly enlarged scale, as compared with the old Leith works, powerfully manned as these were, and during the years which have since intervened considerable additional extension has from time to time been effected. Within the premises themselves a large staff of skilled mechanics, altogether apart from the men employed in the soap manufacture itself, are constantly kept at work in the construction of packing and other accessories used in the industry. Thus all the cases, tins, casks and kegs required in the business are of their own production. It is of interest to note that although the name of the firm continues unchanged, and there has been no break at all in the long line of a most prosperous and successful administration of business, the *personnel* of the existing proprietary does not now include any of the direct descendants of the founders. The individual owners of this important enterprise are now Mr. James Pursell and Mr. C. W. Reid alone, both gentlemen having been trained from youth upward within the establishment which is now their exclusive property. The Broughton Soap Works do not trouble much about the more fanciful sort of the marketable article, but affect mainly the higher qualities of household bar-soaps, a scouring soap much in demand by the woollen mills, and various sorts of soft soaps adapted for varying fancies of the English, Irish, and Scotch markets. A particular specialité of the Broughton production is a pale, sweet soft soap, which, in its looks and powers of cleansing, is claimed as a very remarkable contrast to the loud-smelling "black soap" of former years and markets.

THE HOLYROOD GLASS WORKS.

These works belong to the well-known firm of John Ford and Co. The works are the oldest and most complete in Scotland, having been originally built in succession to those of a similar description, carried on simultaneously for a time at Portobello. Owing to locality a great variety of work has been and is done, comprising every description of flint glass for scientific, lighting, domestic, and decorative purposes.

The richest quality of lead-glass only is made, and has a world-wide reputation for quality, colour, and brilliancy, all the chemicals for which are obtained from England, France, and Germany.

The organisation of the entire place is excellent; order and system prevail throughout; and every resource and capability of the establishment has been developed to its fullest extent. The glass-cutting department is particularly interesting, and is equipped with nearly a hundred frames. A large amount of art glass-engraving is done, workmen of the highest skill being employed thereat. A magnificently engraved service of table-glass has just been completed for H.R.H. the Duchess of York, the representative pieces of which were commanded by her Majesty the Queen to be submitted at Balmoral. The work has occupied twelve months, and has been carried out by very high-class artists, either trained by the firm or having served a long term of service. Many distinguished visitors, including H.R.H. the Prince of Wales, have seen the works.

Mr. John H. Ford, with his brother-in-law and partner, Mr. William Ranken, assisted by the staff, showed visitors over the works during the days of the Society's meeting, no restriction being put upon members or friends. Our illustrations show the glass-blowing house and the cutting department.

BROXBURN OIL COMPANY, LIMITED.

Visitors to these works were afforded the following information in addition to merely viewing these extensive works:—

THE SHALE.

The shale is mined in much the same manner as coal, and conveyed to the breaking machines in railway waggons. The waggons are tipped by hydraulic machinery into the large hoppers of the breaking machine, where the shale is broken into pieces about three inches square. It is then conveyed to the retorts in hutches containing about 12 cwt.

THE RETORTS.

The retorts (known as "Henderson's Patent Improved Retorts") are vertical, and 28 feet long. In the upper portion, about 11 feet long and made of iron, the oil is first distilled off the shale at a temperature of 900°F. The spent shale then passes downward into the brick portion of the retort, and is kept in constant motion by a roller at the bottom, which delivers it into a hopper below at the required rate. This portion is kept at a temperature of about 1,300°F. This higher temperature largely increases the yield of ammonia and permanent gases from the carbon of the shale. The hot products of distillation are drawn from the top of the retorts in the form of oil and watery vapours and permanent gas, passed through a long range of cooling pipes, and the condensed liquids, on being separated, are called crude oil and ammonia water.

The uncondensable or permanent gas is used as fuel.

The spent shale, being of no further use, is stored in a large rubbish bin.

The *Ammonia Water* is distilled with steam in a special column still, and the ammonia gas from the still passed into sulphuric acid to produce sulphate of ammonia.

The *Crude Oil* is refined and fractionated into various qualities of oils, such as lamp oils, gas oils, lubricating oils, solid paraffin, etc., etc.

THE CRUDE OIL.

The crude oil is refined by repeated distillations, during which it is fractionated into the different gravities required; and by treatments with oil of vitriol and with caustic soda. The distillations are according to Henderson's Patent Continuous System.

The first distillation gives:—

Green naphtha.

Green oil.

Still coke (a valuable smokeless fuel).

The green naphtha is treated with oil of vitriol and with caustic soda, and after another steam distillation is ready for the market as shale spirit or naphtha.

The green oil gets treatment with oil of vitriol and caustic soda, and is then ready for the second distillation.

In the treatments the oil is stirred first with oil of vitriol and allowed to settle, when a black tar falls to bottom and is run off. The oil is run by gravitation into another vessel and is mixed with solution of caustic soda. On settling, another black tar separates out. The chemicals are recovered from the tarry matters, and the residue tars are used as fuel, by being injected with steam into the still furnaces. The recovered sulphuric acid is used for making sulphate of ammonia. The oil of vitriol used in the oil refining is manufactured by the Company.

In the second distillation the green oil is fractionated into light oils and heavy oils—the latter containing solid paraffin. The light oils are treated and distilled several times, and are ready for the market as burning oils.

The heavy oils are cooled below the freezing point of water, and the paraffin strained out by passing through filter presses: the two products from the filter presses being now termed blue oil and solid crude paraffin.

The *blue oil* is treated and distilled, fractionated into intermediate oils—used for gas-making and other purposes—and heavy oils for lubricating machinery.

The *crude solid paraffin* is passed direct from the filter presses to the sweating chambers (Henderson's Patent for purifying paraffin), where it is fractionated and refined to from 100° to 120°F. melting point, and is then known as semi-refined paraffin.

If this paraffin is wanted to be further refined or made pure white, the sweating and fractionating process is repeated, and the paraffin is then known as refined paraffin wax of from 125° to 130° Fahr. melting point.

After the sweating process the liquid paraffin is mixed with char, settled, and then filtered through paper, when it is cooled into blocks of paraffin wax, and is then ready for making into candles, night lights, wax matches, or for other purposes.

The total refined paraffin produced is about four thousand tons per annum, the greater portion of which is made into candles at the Broxburn Works and sent over all parts of the world.

The candle works are extensive, and capable of making from 14 to 16 tons of candles per day.

The soft paraffin, melting point 100° Fahr., is called match paraffin, being now used for dipping the ends of the wood matches, instead of brimstone, and also for burning in miners' lamps, and various other purposes.

The average throughput of shale is about 1,300 tons per day—the Broxburn seam yielding 32 gallons of crude oil, and about 46lbs. sulphate of ammonia per ton, while the lower seams of the Roman Camp shales yield about 20 gallons crude oil, and over 72lbs. sulphate of ammonia per ton.

Over 11 million gallons of crude oil are refined annually.

The works and mines cover an area of 250 acres, and there are about 1,700 men and boys employed.

Trade Notes.

PHYLOXERA IN SPAIN.—It is officially stated that phylloxera has made its appearance in the Pajarete vineyards.

PERSONAL.—It is announced that Professor Helmholtz, the distinguished physician and electrician, has had a shock of paralysis, affecting his left side. His condition gives rise to anxiety.

A GAS CHARGES INQUIRY.—The London County Council proposes to apply to the Board of Trade to hold an inquiry into the management of the Gas Light and Coke Company, with reference to the higher charges for gas on the north side of the river than on the south side.

AN AGREEMENT IN THE COAL TRADE.—It is very pleasing indeed to be able to state that the Conciliation Board have succeeded in bringing their labours to a satisfactory issue. On Thursday an agreement was signed, embodying the proposals referred to in our columns recently, which means a truce for two years.

GOLD BY THE CYANIDE PROCESS.—The Crown Reef Gold Mining Company in June crushed 16,700 tons. Accumulated tailings and slimes and treated 8,993 tons of tailings, &c. The yield in smelted gold from mill is 6,014 ounces, from cyanide works 2,631 ounces, and from old works 1,638 ounces, a total of 10,283 ounces.

FINED FOR "SUGARING" BEER.—Last week the landlord of the Waihy Trees, Fulwood, was fined £25. for mixing fifteen pounds of sugar with 567 gallons of worts and beer, so as to increase the gravity, after an account had been taken by the Supervisor of the Inland Revenue. The prosecution is the first of its kind in the neighbourhood.

TO AMERICA FOR 36s.—The American Line has announced a further reduction in the steerage rates from London, Liverpool, and Queenstown to any of their American ports to 36s. for adults, including outfit. This extraordinary rate has never been approached before in the history of the Atlantic service, and is the result of competition with the Hamburg and other continental lines.

COAL WANTED FOR GERMANY.—Information has been received at the Foreign Office from her Majesty's Consul-General at Hamburg that tenders have been invited for the supply of about 120 tons (120,000 kilogrammes) and 1,600 tons (1,600,000 kilogrammes) of coal for naval purposes at Cuxhaven. Tenders may be sent in to the Finance Department of Hamburg up to noon of the 21st inst.

RAISING THE FLASHPOINT OF OILS DEEMED REASONABLE.—Speaking on the oil trade the *Engineer* says: Legislation on the flashpoint of burning oils used throughout the United Kingdom, which may reasonably be hoped for, would tell in favour of the Scotch trade, though perhaps not to the extent expected by some. It is an indisputable fact that large quantities of lamp oil are sent to this country from America which could not be legally sold there; and it is equally indisputable that these low flash oils are largely to blame for the terrible frequency of lamp accidents in England. In Scotland, where the native article is still almost exclusively used for burning purposes, such catastrophes are comparatively unknown.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol is rather firmer in price, with 90's at 1s., and 50/90's 1s. 1d. Carbolic acid, both crude and crystal, is firmer. Crude naphtha is steady, and solvent is strong at a fraction lower. Pitch remains in *status quo ante*.

Sulphate of ammonia is rather puzzling. A fairly good amount of business is passing, and inquiries from America are not wanting. Still, though sulphate is scarce, prices are low, and do not seem to show signs of moving either way. Beckton value is £13. 17s. 6d., and the same figure may be quoted for London outside makes. Liverpool price is also £13. 17s. 6d., Hull and Leith £13. 17s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

Business generally during the past week has been dull, and there are no changes of importance to report. Bleaching powder continues in fair request at former figures. Caustic soda quiet, with prices in buyers' favour, current prices, however, are unchanged, viz.:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d. per ton, 10-ton lots and upwards. Saltcake has rather more demand. Soda crystals move slowly at 45s. bags, and 50s. casks, rails, works. Chlorate of potash quiet at 6½d. per lb., soda 8d. per lb. Sulphur of all grades in poor request: recovered is quoted £3. 15s.; roll, £5. 5s.; flowers, £7. 5s.

per ton. Nitrate of soda very steady at 9s. per cwt. Sulphate of copper remains flat, £14. 15s. to £15. per ton, f.o.b., are general quotations. Acetates of lime firmer, and prices are advancing, and considerable rise may shortly be expected. The £2. drop in foreign white sugar of lead does not appear to have assisted sales in any way. Acetate of soda has a steadier tone, but price still remains at £15., c.i.f. White powdered arsenic quiet, and business passing but small—£14., Garston, is about its value to-day. Yellow prussiate of soda and potash very firm, and prices are for soda 9d., and potash 10½d. per lb. Cyanide of potassium in strong demand. Oxalic acid continues steady at 3¼d. Carbolic acid improving, and prices are firmer. Sulphocyanides find a better market, and higher figures are obtainable.

REPORT ON MANURE MATERIAL.

During the week a fair amount of business has been passing, but without any material alteration in values. There seems to be more disposition to sell the higher grades of phosphate rock: for 75/80% Florida 8½d. per unit would be accepted for cargoes c.i.f. to Baltic, probably 8d. c.i.f. to Continent, and something under 8d. c.i.f. good United Kingdom ports. For South Carolina River rock 6½d. per unit is quoted, but for Peace River, which is scarcer, something more would have to be paid. £4. 12s. 6d. to direct United Kingdom ports for a 750 ton cargo of River Plate bones; there would be further buyers at the price for anything of handy size. For cargoes of larger size £4. 12s. 6d. is hardly obtainable. Crushed Kurrachee bones may be had at £4. 13s. 9d. per ton, ex quay Liverpool, autumn shipment, and Bombay bone meal at £4. 15s. per ton, the market being a shade easier. Nitrate of soda is easier on spot, owing to arrivals, and 8s. 10½d. would be accepted for fine quality, ex quay; 8s. 9d. would be business for ordinary quality about due per steamer. Due and near at hand cargoes are worth 8s. 9d. to 8s. 10½d., according to size and test, and later shipments 8s. 10½d. to 9s. 3d. per cwt. A small lot of River Plate dried blood, arrived at Liverpool, sold at 10s. 9d. per unit, ex quay. Nothing further to report.

TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical trade matters remain quiet, and quotations unaltered. Soda crystals are still quoted at £2. 1s. per ton gross weight. Sulphur firm at £4. per ton. 76/77% caustic, £10. 10s.; bleach, £7. 5s. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett; soda ash, 48%, £3. 12s. 6d. per ton, nett; do., 52%, £3. 16s. 3d. per ton, nett; do., 56%, £4. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT continues in fair demand at 10s. 6d. per ton, f.o.b. Tees.

COALS rather quieter, though several of the collieries have good turns on, and are not pressing for orders. Prices are not materially changed. Best Northumbrian steam, 11s. and 11s. 6d. per ton; second qualities steam, 9s. 6d. and 10s. per ton; small steam, 5s. and 5s. 6d. per ton; bunker coal, 7s. and 7s. 6d.; gas coals, 7s. 6d.; coke, steady, 13s. 6d. and 14s. 6d. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

All the chemical works of this city and neighbourhood—indeed manufactories of every kind—are to-day closed, having shut down for the annual holidays on Friday last. The period of the closure varies, but the earliest to resume will not do so for yet a few days, and it will be the beginning of next week before there is any very general move towards reopening. Business offices also have been all closed since Friday, so that the usual market indications are to a considerable extent wanting. Stoppage of production will no doubt exercise a certain stiffening effect on quotations, but not to the mark of any special advance, demand having been very weak for a long time.

The coal miners are still on strike, but the money to support them is not procurable in anything like sufficiency, and belief in early surrender, or serious defection at the least, is growing. Under this influence sulphate of ammonia inclines to easier quotations, especially as business shows itself extremely idle.

Mineral oils and paraffins are unchanged, and very little is passing.

Chief prices current are:—Soda crystals £2. 1s. to £2. 2s. nett, Tyne; soda ash 48/52° £3. 12s. 6d. to £3. 17s. 6d. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow, caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £22. 10s., and boracic acid, £32. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s. od.; sulphate of ammonia, £13. 17s. 6d. to £14. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 10s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4d. per gallon; paraffin oil (burning), standard No. 1 grade, 5d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 43,320 bags.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The markets all round are very flat and lifeless, and little appears to be doing. Some of the manufacturing districts here have quite a holiday appearance, the mills being closed, and no doubt will remain so at alternate periods during the summer months. The principal imports into Hull up to date compared during the same time of last year are: Linseed, 241,720 qrs. against 162,182 qrs.; rapeseed, 63,784 qrs. against 25,455 qrs.; cottonseed, 120,403 tons against 108,008 tons; olive oil, 13,290 casks against 6,063 casks; rape oil, 4,447 casks against 3,949 casks; oil cakes, 9,776 tons against 17,801 tons; tallow, 11,649 cwts. against 17,801 cwts.; bones, 4,378 tons against 3,376 tons; turpentine, 12,839 barrels against 8,741 barrels. Refined cotton oil again about 5s. per ton lower, closing steady at 18s. 3d. naked; July-October, 18s. 4½d.; November-April, 17s. 6d. Crude, 16s. 4½d. naked on the spot. Export of refined, 1,380 cwts. During the week 1,639 tons of cottonseed have arrived from Alexandria. Linseed oil dull with sellers at 19s. 9d. naked spot or July-August, and at 18s. 9d. September-December or January-April; casks, 17s. 6d., and ordinary barrels 22s. 6d. per ton extra; boiled and refined from £1 to £2 per ton extra; export for the week 2,040 cwts. Spirits of turpentine 22s. 3d. per cwt. Olive and rape oils remain unchanged and cheap. Castor oil, 2¼d. per lb. Cod oil quiet, £17. to £20. per ton. Sod oil quiet from £16. to £22. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes remain quiet; 95% pure, £6. 10s.; Russians, £6 12s. 6d. Oilcakes, £5. 12s. 6d. Cotton cakes somewhat dull; best makes, £4.; seconds £3. 17s. 6d. Rape cakes: East India, £3. 17s. 6d.; Black Sea, £3.; feeding cakes, £4. 17s. 6d. per ton.

PAINTS.—Trade continues good, with nothing extraordinary passing. Prices are: Oxide of iron dry, from £7. to £18. per ton. yellow ochre from £3. 15s.; Venetian red dry, from £3. 15s. per ton; blue black, £4. 5s. per ton; levigated umber, £4. 5s. per ton; casks free, f.o.b., English port. White and red leads unchanged. Oxide of zinc paint £22 per ton. Common black varnish £5. 10s. per ton, barrels free. Oak varnish from 5s. 6d. per gallon. Ready mixed paints in 1, 2, 4, 7, and 14 lb. tins from £24. per ton.

New Companies.

Billiter Syndicate, Limited.—CAPITAL £5,000. in shares of £100. each. This company has been formed to carry on the business of iodine manufacturers and manufacturers of nitrate and charcoal, etc.

Dinting Soap and Chemical Company, Limited.—CAPITAL £20,000. in £10. shares. This company has been formed to acquire and carry on the business of soap manufacturers, now carried on by J. Hulme as the Dinting Soap and Chemical Company. The subscribers to the memorandum of association are:—James Hulme, 224, Muslin-street, Newton Moor, Hyde, chemical manufacturer; H. S. Watts, Sunny Bank, Newton Moor, Hyde, analytical chemist; J. R. Wood, 28, Northern Grove, Didsbury, buyer; B. H. Crabtree, The Oaklands, Levenshulme, Manchester, dyer; F. Ainsworth, 102, Walmersley-road, Bury, analytical chemist; C. H. Tongue, New House, Darcy Lever, Bolton, coal agent; W. I. Sutcliffe, Glenwood, Godley, Hyde, cement manufacturer.

H.B. Oil Syndicate.—CAPITAL £20,000. in shares of £1. This company has been formed to purchase certain patents of Professor W. N. Hartley and Mr. W. E. B. Blenkinsop for refining pale boiled oils, decolorising and thickening vegetable oils. The subscribers to the memorandum of association are:—W. N. Hartley, 36, Waterloo-road, Dublin, professor of chemistry; W. E. B. Blenkinsop, Garden Wharf, Church-road, Battersea, manufacturing chemist; G. Miles, 34, Leppoe-road, Clapham, S.W., engineer; R. C. Heath, 1, New-street, Warwick, solicitor; W. G. Baker, Battersea, manufacturing chemist; H. J. Faiers, 21, Worsley-road, Leytonstone, bookkeeper; J. S. Smith, 1, Moorgate-place, E.C., solicitor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Soaps. W. M. Walters. 12,782. July 2.
Manufacture of Artificial Sandstone. J. Pfeiffer. 12,811. July 2.
Extracting and Refining Wool Fat from Wool Scouring Liquors. C. N. Wilson. 12,836. July 3.
Rust Preventing Composition. F. Evers. 12,872. July 3.
Obtaining Ammonia and Ammonia Salts from Nitrogenous Organic Matters. H. H. Lake. 12,881. July 3.
Glue Making Machinery. P. C. Hewitt. 12,911. July 3.
Manufacture of Artificial Musk. C. D. Abel. 12,980. July 4.
Manufacture of Chemical Compounds Containing Iodine. H. E. Newton. 12,987. July 4.
Electrolytic Separation of Gold from Ores. A. Cruickshank. 12,993. July 4.
Improvements in Luminous Paint. L. E. Josset. 13,145. July 6.
Purification of Alcohol and Spirits. E. Hermite, E. J. Paterson, and C. F. Cooper. 13,153. July 6.
Improvements in Steam Traps. W. Shore and G. E. Coupe. 13,166. July 7.
Manufacture of White Lead and Nitrate of Ammonia. H. Wilcox. 13,202. July 7.

Gazette Notices.

PARTNERSHIP DISSOLVED.

H. SMITH and W. C. FORSYTH, manufacturing chemists, Leathiden, Stockport, under the style of the Manchester and Stockport Chemical Co.
T. READE and E. SHAW, chemical manufacturers, Wolverhampton, under the style of Reade, Bros., & Co.
L. W. LEE and J. COLLETT, and L. W. LEE and J. R. C. PALMER, lime and whitening manufacturers and cement merchants respectively, Chelsfield, Kent, under the style of Lee and Co.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 7th.

Acetic Acid—

Holland, 12 pkgs. A. & M. Zimmermann
100 Beresford & Co.
Belgium, 6 Sawyer, Sons & Co.

Acetone—

Holland, 2 pkgs. Beresford & Co.
6 A. & M. Zimmermann

Alkali—

Holland, 3,000 c. R. Waters
France, 432 Arnati & Harrison
Germany, 21 pkgs L. & I. D. Jt. Co.

Alum—

Holland, 30 pkgs. Greeff & Co

Germany, 12

Belgium, 24 Ohlenschlager Bros.
R. W. Greeff & Co.

Aluminium—

Belgium, 10 c. Major & Field

Ammonium Chloride—

Holland, 15 pkgs. Philipps & Graves
4 Kaltenbach & Schmitz
1 H. Lorenz

Aniline—

Germany, 2 pkgs. Philipps & Graves

Anthracene—

Holland, 344 pkgs. Burt, Boulton

Antimony Ore—

Germany, 13 t. H. R. Merton & Co.

Arsenic—

Germany, 20 pkgs. Anti-Fouling
Paint Co.

Asbestos —		
France, 486	Mory & Co	
Italy, 138	A. Laming & Co.	
Holland, 1,000	J. Owen	
U. States, 1,500	Beck & Pollitzer	
Barium Chloride —		
Germany, 23 pkgs.	Petri Brs.	
Barytes —		
Belgium, 136 cks.	J. L. Lyon & Co.	
" 15	S. H. Willoughby	
" 60	O'Hara & Hoar	
" 107	W. Harrison & Co.	
Holland, 23	W. Pope & Co.	
Benitro Toluol —		
Holland, 10 pkgs.	J. Owen	
Boracic Acid —		
Holland, 4 pkgs.	H. Lorenz	
Camphor —		
Germany, 72 tubs. 166 pkgs.	R. Warner & Co., Ltd.	
" 79	S. Figgis & Co.	
Caoutchouc —		
Rangoon, 212 c.	Middleton S.S. Wf. Co.	
" 70	L. & I. D. Jt. Co.	
E. Indies, 204	" J. Owen	
Cape, 8	" J. Owen	
Zanzibar, 11	Anderson, Weber & Smith	
Peru, 18	J. H. Schroder & Co.	
Germany, 15	Prop. Bull Wf	
" 366	Ross & Deerin	
France, 126	Arnati & Harrison	
Castor Oil —		
France, 12 cs.	Beresford & Co.	
Belgium, 17 brls.	Fuerst Brs.	
Caustic Potash —		
Belgium, 2 c.	Petri Brs.	
France, 20	F. J. Putz & Co.	
" 40 drs.	J. Knight & Son	
Belgium, 25 c.	Petri Brs.	
Holland, 7 cs.	E. Merck	
Chemicals (otherwise undescribed)		
Germany, 58 pkgs.	A. & M. Zimmermann	
" 45	T. H. Lee	
" 5	Phillips & Graves	
" 6	L. & I. D. Jt. Co.	
A. Turkey, 533	A. B. Curtis & Co.	
Holland, 10	T. H. Lee	
" 3	Phillips & Graves	
France, 16	H. Johnson & Sons	
Demerara, 48	Scrutton, Sons, & Co.	
U. States, 23 pkgs.	A. P. Morris	
Germany, 15	Beresford & Co.	
Citrate of Lime —		
Italy, 20 pkgs.	Thames S. T. & L. Co., Ltd.	
Copperas —		
Germany, 7 pkgs.	City Coml. Wf. & Ld.	
Cream of Tartar —		
France, 10 pkgs.	Ross & Deering	
" 10	M. Ashby, Ltd.	
" 5	F. C. Devon & Co.	
" 5	Robinson & Co.	
" 5	W. C. Bacon & Co.	
" 6	B. & F. Wf. Co.	
Italy, 20	Howards & Sons	
" 20	Fellows, Morton & Co.	
Spain, 20	W. C. Bacon & Co.	
" 3	C. Christophersen & Co.	
" 13	B. & F. Wf. Co.	
Portugal, 2	H. W. Peabody & Co.	
France, 20	"	
Dextrine —		
Germany, 5 pkgs.	W. Burton & Sons	
Dyestuffs —		
Argols		
Italy, 58 pkgs.	Thames S. T. & L. Co., Ltd.	
" 795	B. Jacob & Sons	
Cutch		
E. Indies, 500 pkgs.	Ross & Deering	
Rangoon, 500	Williams, Torrey & Co.	
" 300	Leach & Co.	
" 150	Arracan Co., Ltd.	
Extracts		
Belgium, 30 pkgs.	Leach & Co.	
" 100	T. H. Lee	
Denmark, 2	J. Sinclair & Son	
" 9	Evans, Lescher & Co.	
" 26	Bailey & Leatham	
" 2	Sorensen & Co.	
" 1	M. D. Co.	
" 26	Shaw, Savill & Albion Co.	
France, 25	B. & F. Wf. Co.	
" 5	T. H. Lee	
Austria, 500	A. J. Humphrey	
Germany, 50	J. Knill & Co.	
Canada, 100 cks.	A. J. Humphrey	
Fustic		
Jamaica, 5 t.	Park, Macfadyen & Co.	
" 1	Gillespie Brs. & Co.	
" 3	Benekendorff & Co.	
B. W. I., 8	Perkins & Homer	
Gambler		
E. Indies, 641 pkgs.	L. & I. D. Jt. Co.	
" 470	S. Barrow & Bro.	
" 185	A. Hagan	
" 445	Ross & Deering	
" 887	C. & S. Cox & Co.	
" 1,354	G. Ward & Sons	
" 3,109	Adamson, Gilfillan & Co.	
Indigo		
E. Indies, 52 cts.	L. & I. D. Jt. Co.	
" 9	Frith, Sands & Co.	
" 25	Croysdale & Co.	
" 61	Park, Macfadyen & Co.	
" 11	Parsons & Keith	
Logwood		
France, 4 t.	T. H. Lee	
Jamaica, 6	S. Dobtree & Sons	
" 5	Chalmers, Guthrie & Co.	
" 10	Park, Macfadyen & Co.	
" 169	Benekendorff & Co.	
Myrabolams		
E. Indies, 120 pkgs.	L. & I. D. Jt. Co.	
Ochella		
Portugal, 3 pkgs.	L. & I. D. Jt. Co.	
Shumac		
Italy, 450 pkgs.	Union L. Co.	
" 50	J. Knill & Co.	
" 500	Harris Brs.	
" 100	H. Johnson & Sons	
" 500	J. Kitchin, Ltd.	
" 100	W. Isted	
Tanners' Bark		
Natal, 200	A. & W. Nesbitt	
" 67	Flack, Chandler, & Co.	
Turmeric		
E. Indies, 65 pkgs.	J. P. Alpe & Co.	
" 40	Hoare, Wilson, & Co.	
Valonia		
A. Turkey, 12 t.	Beresford & Co.	
Farina —		
Holland, 50 pkgs.	H. Lorenz	
" 50	J. Knill & Co.	
Germany, 50	J. Barber & Co.	
Glucose —		
Germany, 25 pkgs.	198 c. Prop	
France, 80	83 c. Mead, Son, & Co.	
" 80	80 J. Barber & Co.	
" 200	200 Barrett, Tagant, & Co.	
U. States, 500	500	
" 3	17 Beck & Pollitzer	
" 2,500	2,500 R. G. Hall & Co.	
" 2,000	2,000 L. Sutro & Co.	
" 500	500 Humphrey & Co.	
France, 100	100 L. Norman & Co., Ltd.	
Lead Acetate —		
France, 10 pkgs.	W. J. Crook	
Manure —		
E. Indies, 99 t.	Fox, Roy, & Co.	
Germany, 300	D. de Pass & Co.	
" 11	Patents Proprietary, Ltd.	
" 50	Perkins & Homer	
Mica —		
E. Indies, 4665	W. M. Smith & Sons	
France, 111	Hernu, Peron, & Co.	
Methyl Alcohol —		
Germany, 6 cks.	Lister & Biggs	
Belgium, 10 dms.	Stein Brs.	
Ochre —		
France, 102 brls.	Ross & Deering	
" 282 cks.	W. Harrison & Co.	
" 3	Stobbs, Wilson, & Co.	
Holland, 12 pkgs.	Phillips & Graves	
Germany, 2 cs.	"	
" 50 brls.	L. & I. D. Jt. Co.	
Paraffin Wax —		
U. States, 415 cs.	100 brls: H. Hill & Sons	
" 300	266 Anglo-American Oil Co.	
Phosphate Rock —		
Belgium, 230 t.	Odams Chemical	
Holland, 170	Manure Co.	
U. States, 3,200	West & Penrose	
" 300	Fox, Roy, & Co.	
Phosphoric Acid —		
Germany, 20 pkgs.	Berger, Kahler, & Co.	
Plumbago —		
Ceylon, 94 brls.	Beresford & Co.	
Germany, 51 cks.	B. Gallaway	
" 22	Lentz & Kessel	
Potash —		
Canada, 124 c.	S. Ward & Co.	
Potassium Bromide —		
U. States, 5 pkgs.	S. Lambert & Co.	
Potassium Carbonate —		
France, 80 c.	J. A. Reid	
" 40	F. J. Putz & Co.	
Potassium Hydrate —		
France, 9 pkgs.	Spies Brs. & Co.	
Potassium Permanganate —		
Holland, 14 cs.	E. Merck	
Germany, 20 pkgs.	Spies Brs. & Co.	
Potassium Sulphate —		
France, 50 pkgs.	Petri Brs.	
" 50	Mead, Son, & Co.	
Pumice Stone —		
Belgium, 24 c.	T. Palmer	
Italy, 70	B. & N. Whvs. Co.	
" 50	Tudors, Marsh, & Co.	
" 18 t.	O'Hara & Hoar	
" 15	R. McCracken & Co.	
Canary, 116	T. Damaner	
" 36	L. & I. Dk. Co.	
Pyridine —		
Holland, 8 pkgs.	Burt, Boulton, & Co.	
Pyrites —		
Spain, 800 t.	C. L. Vasey & Co.	
" 500	Anderson, Anderson, & Co.	
Rosin —		
U. States, 500 brls.	Rowatt's Wf.	
Saltpetre —		
Germany, 8 cks.	Petri Brs.	
" 23	Brown & Elmslie	
" 23	P. Hecker & Co.	
Sodium Acetate —		
France, 40 pkgs.	S. F. Waters & Co.	
Sodium Hyposulphite —		
Holland, 20 pkgs.	City Coml. Wf. & Ld.	
Sodium Nitrate —		
Holland, 10 pkgs.	Phillips & Graves	
Starch —		
Germany, 205 pkgs.	Phillips & Graves	
Holland, 60	"	
" 986	Little & Johnston	
" 252	Taylor Brs.	
U. States, 200	R. Warner & Co., Ltd.	
Belgium, 192	Leach & Co.	
" 60	T. H. Lee	
" 10	W. Friedlander	
Stearine —		
France, 263 bgs.	Beresford & Co.	
Holland, 124	H. Hill & Sons	
France, 120	"	
Belgium, 935	"	
Sulphur —		
Italy, 21 t.	J. Kitchin, Ltd.	
" 5	F. Smith	
" 23	F. C. Devon & Co.	
" 10	J. Greig	
" 5	E. Austin & Co.	
Tallow and Stearine —		
U. States, 183 cks.	W. Johnson & Co., Ltd.	
Tartaric Acid —		
Holland, 4 pkgs.	G. Rahn & Co.	
" 22	Kirkpatrick & Co.	
Turpentine —		
Holland, 6 cs.	Phillips & Graves	
Ultramarine —		
Holland, 2 cks.	Haefner & Co.	
" 5 pkgs.	G. Rahn & Co.	
Varnish —		
Belgium, 10 pkgs.	Stobbs, Wilson, & Co.	
France, 2	Flageollet & Co.	
Verdigris —		
France, 2 pkgs.	C. Brumlen & Sons	
White Lead —		
Holland, 45 cks.	Burrell & Co.	
" 20	Magee, Taylor, & Co.	
" 11	Petri Brs.	
" 20	A. & M. Zimmermann	
Germany, 12	45 brls. W. Balchin	
France, 46	H. Lambert	
" 29	W. Harrison & Co.	
" 20	A. Zumbach & Co.	
" 20	J. Watt & Son	
Wood Pulp —		
Denmark, 280 pkgs.	G. F. Green & Co.	
Germany, 84	Craven & Co.	
" 543	Kellner Partington Paper Pulp Co.	
" 580	E. J. & W. Goldsmith	
Canada, 17,413	"	
Portugal, 250	Tough & Henderson	
Holland, 147	Phillips & Graves	
" 1,301	E. J. & W. Goldsmith	
Austria, 204	W. Friedlander	
U. States, 281	Seaward Brs.	
Zinc Chloride —		
Holland, 3 pkgs.	Kaltenbach & Schmitz	
Zinc Oxide —		
U. States, 200 brls.	M. Ashby, Ltd.	
Germany, 50	"	
Holland, 100 cks.	Burrell & Co.	
" 20	F. Pryor	

LIVERPOOL.

Week ending July 5th.

Acetate of Lime —		
New York, 722 bgs.	J. W. Coulston & Co.	
" 765	S. W. Royce	
Alkali —		
Hamburg, 2 cks.	"	
Aluminium —		
New York, 6 brls.	W. S. Sample	
" 3 cs.	Pickford & Co.	
Ammonia —		
Cenra, 2 cs.	R. Singlehurst & Co.	
Antimony —		
Havre, 8 cs.	Cunard S. S. Co., Ltd.	
Asbestos —		
Quebec, 3 bgs.	Nairn & Roe	
Montreal, 200 sks.	"	
Barytes —		
Antwerp, 180 bgs.	4 cks.	
Boracic Acid —		
Leghorn, 30 cks.	"	
Carbolic Acid —		
Rouen, 60 dms.	Co-op. W'sale Society, Ltd.	
Castor Oil —		
Calcutta, 140 cs.	Ralli Brs.	
" 125	"	
Chemicals (otherwise undescribed)		
Rotterdam, 2 cks.	"	
Colours —		
Hamburg, 6 cs.	"	
Rotterdam, 18 cks.	"	
Antwerp, 3 brls.	1 cs.	
Cream of Tartar —		
Barcelona, 5 cks.	"	
Dyestuffs —		
Annatto		
Bordeaux, 3 cks.	R. J. Francis & Co.	
" 10	"	
Argols		
Oporto, 22 cks.	German Bank of London	
Cochineal		
Gd. Canary, 25 bgs.	R. Evans	
" 60	Kennedy & Moore	
Cutch		
Rangoon, 5,249 bxs.	13 cs.	
Divi Divi		
Santa Marta, 253 bgs.	Fruhling & Goschen	
Extracts		
Bordeaux, 50 cks.	"	
Baltimore, 20 brls.	"	
Antwerp, 30 cks.	J. T. Fletcher & Co.	
Fustic		
Rotterdam, 57 ps.	"	
Logwood		
New York, 500 ps.	B. Ackerley & Son	
Philadelphia, 10 crts.	"	
Saffron		
Valencia, 2 cs.	"	
Turnerite		
Calcutta, 250 bgs.	Ralli Brs.	
" 8	"	
Bombay		
Valonia, 214	"	
Smyrna, 50 t.	Barry Brs.	
" 275 bgs.	"	

Farina — Fiume, 230 bgs.	
Glucose — New York, 250 brls. T. M. Duché & Son	
Lead Acetate — Hamburg, 29 cks.	
Limestone — Antwerp, 1 cs. 4 crts. J. T. Fletcher & Co.	
Nickel — Havre, 8 cks. Cunard S. S. Co., Ltd.	
Ochre — Marseilles, 6 brls.	
Paint — Hamburg, 3 cks.	
Paraffin Scale — New York, 300 brls. Thompson, Bedford	
Paraffin Wax — Rangoon, 660 cs.	
Phosphate — Bona, 1,150 t Montreal, 260 Phosphate of Lime Co.	
Phosphate Rock — Port Royal, 1,000 t Fernandina, 2,500	
Phosphoric Acid — Hamburg, 12 cks.	
Potash — Rouen, 145 cks. Co op. W'sale Society, Ltd. Hamburg, 54 Rotterdam, 1 Montreal, 41 brls. Antwerp, 1 ck. 5 dms.	
Potassium Silicate — Rotterdam, 1 ck.	
Pumice Stone — Teneriffe, 282 bgs.	
Pyrites — Huelva, 4,479 t. Matheson & Co.	
Rosin — New York, 950 brls. Armour & Co. Baltimore, 1,400	
Soap — New York, 1 cs. Simandiris Naples, 39 Cottea & Co. Marseilles, 1 P. Behrends Ghent, 28 cs. Henderson Bros. J. T. Fletcher & Co.	
Soapstone — Philadelphia, 163 bgs.	
Starch — Antwerp, 170 cs. J. T. Fletcher & Co. Rotterdam, 142 1 ck. 60	
Stearine — Rotterdam, 5 cs. Antwerp, 100 bgs.	
Tallow — Campana, 360 cks. New York, 100 hds. Co-op. W'sale Society, Ltd. Boston, 180 140 tcs. New York, 10 tcs. Eastman's, Ltd.	
Tartar — Bordeaux, 1 ck. R. J. Francis & Co. 32 cks.	
Tartaric Acid — Rotterdam, 2 cks.	
Yarnish — Hamburg, 2 cs.	
White Lead — Antwerp, 7 cks. Rotterdam, 25 Antwerp, 1 brl. J. T. Fletcher & Co.	
Wood Pulp — New York, 544 rlls.	
Zinc Oxide — Antwerp, 25 brls. Rotterdam, 50 cks.	
Zinc White — Rotterdam, 210 cks. O. & H. Marcus 50	

MANCHESTER.

Week ending July 7th.

Alum — Rotterdam, 22 cks. Simpson, Howden, & Co.	
Alumina Sulphate — Rotterdam, 320 cks. Simpson, Howden, & Co.	
Aniline Oil — Rotterdam, 8 brls.	
Antimony — Rotterdam, 10 cks.	
Barytes — Rotterdam, 31 cks.	
Carbonic Acid — Rotterdam, 20 tubes.	
Castor Oil — Antwerp, 67 brls.	
Chemicals (otherwise undescribed) — Rouen, 28 cks. Rotterdam, 6 Hamburg, 3 5 cs.	
Colours — Rotterdam, 30 cs. 5 cks. 14 brls. 2 bxs. Simpson, Howden, & Co. Hamburg, 12 44 cks. Antwerp, 2 10 14	
Dextrine — Hamburg, 66 bgs.	
Dyestuffs — Allzarine Rotterdam, 22 brls. Simpson, Howden, & Co.	
Farina — Hamburg, 50 bgs.	
Lead Acetate — Rouen, 12 cks. Hamburg, 17	
Limestone — Antwerp, 3 crts.	
Permanganate — Rotterdam, 5 brls.	
Pitch — Rotterdam, 23 cks. Simpson, Howden, & Co. Hamburg, 34 brls.	
Potash — Hamburg, 6 cks. Bordeaux, 8 J. & P. Hutchinson	
Potassium Muriate — Hamburg, 500 bgs.	
Potassium Sulphate — Rotterdam, 100 cks. Simpson, Howden, & Co.	
Salammoniac — Rotterdam, 1 ck.	
Salt — Thursby, 500 t.	
Saltpetre — Hamburg, 1 brl.	
Soap — Rotterdam, 2 cs.	
Starch — Rotterdam, 28 bxs. Simpson, Howden, & Co. Hamburg, 180 cs. Antwerp, 269 50 bgs. 240	
Tartar — Hamburg, 10 cks. Bordeaux, 1 J. & P. Hutchinson	
Tartaric Acid — Rotterdam, 19 cks.	
Tin Perchloride — Antwerp, 2 cks.	
Waste Salt — Hamburg, 310 t.	
Wood Spirit — Hamburg, 1 dm.	
Zinc Oxide — Rotterdam, 13 brls. Simpson, Howden, & Co.	

HULL.

Week ending July 7th.

Acetic Acid — Rotterdam, 38 blns. Hutchinson & Son	
Alum — Rotterdam, 38 cks. W. & C. L. Ringrose	
Antimony — Hamburg, 10 cs. Wilson, Sons, & Co., Ltd.	
Arsenic — Hamburg, 10 brls. Wilson, Sons, & Co., Ltd.	
Barytes — Rotterdam, 47 cks. Hutchinson & Son Antwerp, 125 Bailey & Leatham	
Bitro Toluol — Rotterdam, 6 cks. W. & C. L. Ringrose	
Boracic Acid — Rouen, 2 cks.	
Borax — Rouen, 2 cks.	
Chemicals (otherwise undescribed) — Stettin, 14 cks. Wilson, Sons, & Co., Ltd. Hamburg, 4 Bremen, 1 2 cs. Veltmann & Co. Dunkirk, 31 pks. Wilson, Sons, & Co., Ltd.	
Colours — Hamburg, 239 pks. Wilson, Sons, & Co., Ltd. Rotterdam, 140 20 cks. W. & C. L. Ringrose 28 11 19 brls. 8 cs. Hutchinson & Son Danzig, 5 cks. Wilson, Sons, & Co., Ltd. Amsterdam, 4 W. & C. L. Ringrose Hamburg, 22 5 cs. G. Malcolm & Son 1	
Cryolite — Copenhagen, 3 cks. Wilson, Sons, & Co., Ltd.	
Dextrine — Stettin, 20 bgs. Wilson, Sons, & Co., Ltd.	
Dyestuffs — Allzarine Rotterdam, 59 cks. W. & C. L. Ringrose Logwood Antwerp, 40 bgs. Wilson, Sons, & Co., Ltd.	
Farina — Ghent, 261 cs. Wilson, Sons, & Co., Ltd. Harlingen, 151 bgs. Stettin, 760 Hamburg, 50 Bailey & Leatham 50 White & Son	
Glucose — New York, 100 brls. 1,097 bgs. Stettin, 300 bgs. Wilson, Sons, & Co., Ltd.	
Lime — New York, 1,470 bgs. Wilson, Sons, & Co., Ltd.	
Paint — Boston, 17 cs. Wilson, Sons, & Co., Ltd. New York, 33	
Phosphate — Ghent, 1,632 bags Dunkirk, 200 t.	
Pitch — Ghent, 51 brls. Wilson, Sons, & Co., Ltd.	
Potash — Rotterdam, 300 bgs. Wilson, Sons, & Co., Ltd.	
Pumice Stone — Hamburg, 1 cs. Wilson, Sons, & Co., Ltd.	
Starch — Antwerp, 200 cs. Bailey & Leatham Bremen, 851 Veltmann & Co. Antwerp, 116	

Stearine — Bergen, 15 cks. Wilson, Sons, & Co., Ltd. Antwerp, 9 pks. "	
Talc — New York, 1,120 bgs. Wilson, Sons, & Co., Ltd.	
Tartar — Bordeaux, 10 cks. Rawson & Robinson	
Tartaric Acid — Rotterdam, 2 cks. 4 cs. Hutchinson & Son 4 W. & C. L. Ringrose	
Turpentine — Bordeaux, 35 brls. Rawson & Robinson Savannah, 3,184	
Yarnish — Hamburg, 2 cs. Wilson, Sons, & Co., Ltd. New York, 3 brls. "	
White Lead — Rotterdam, 10 cks. Storry, Smithson, & Co. 45 Johnson Bros. 54 Sissons Bros. & Co. 54 A. Sanderson & Co. 54 Tudor & Sons 11 Hanger, Watson, & Harris	
Wood Pulp — Bremen, 14 bls. Aire & Calder Helsingfors, 127 N. Co. 156 J. Good & Sons 38 Furley & Co.	
Zinc Oxide — Rotterdam, 50 cks. Hutchinson & Son 10 W. & C. L. Ringrose 20 Hanger, Watson, & Harris	

GLASGOW.

Week ending July 12th.

Amyl Acetate — Hamburg, 1 cs.	
Aniline — Rotterdam, 6 cks. 1 cs. J. Rankine & Son	
Asbestos — Rouen, 425 bgs. Genoa, 44 pks.	
Barium Sulphate — Antwerp, 34 cks. 500 bgs.	
Barytes — Rotterdam, 91 cks. J. Rankine & Son	
Carbonic Acid — Rotterdam, 60 tubes. J. Rankine & Son	
Colours — Rotterdam, 9 cs. 2 cks. J. Rankine & Son 49 pks.	
Copper Sulphate — Bordeaux, 1 cs.	
Dyestuffs — Allzarine Rotterdam, 11 pks Argols Bordeaux, 36 bgs. Cutch Calcutta, 500 bxs. Extracts Rouen, 16 cks. Genoa, 77 brls. New York, 60 bxs.	
Farina — Delfsylv, 100 bgs. Antwerp, 1	
Glucose — New York, 192 brls.	
Hydrofluoric Acid — Hamburg, 1 ck	
Infusorial Earth — Hamburg, 18 bgs.	
Manganese Ore — Poli, 1,500 t. The United Alkali Co.	

Oxalic Acid — Rotterdam, 96 cks. J. Rankine & Son	Waste Salt — Hamburg, 508 bgs.	Ochre — Cartagena, 330 brls.	Caustic Potash — Calais, 21 dms.
Paraffin Wax — New York, 60 brls.	White Lead — Rotterdam, 113 cks. J. Rankine & Son	Paint — Hamburg, 20 cks. Tyne S. S. Co.	Dyestuffs (otherwise undescribed) Rotterdam, 214 pkgs.
Rosin — New York, 1,000 brls.	Delfsryl, 1 tin	Phosphate — Antwerp, 260 t.	Boulogne, 40 cks. 15 cs
Soap — Philadelphia, 100 brls.	Antwerp, 7	Pyrites — Huelva, 2,115 t.	Logwood — Campechy, 430 t.
Sodium Acetate — Koon, 9 cks.	Wood Pulp — Skien, 974 bls.	Cartagena, 490	Saltpetre — Rotterdam, 200 bgs.
Stearine — Rotterdam, 17 cks. J. Rankine & Son	Montreal, 1,500 bds. 522 rlls.	Starch — Rotterdam, 88 cs. Tyne S. S. Co.	Hamburg, 20 cks.
Talc — Calcutta, 3 cs.	Christiania, 754 bls.	Antwerp, 20	Waste Salt — Hamburg, 250 t. 195 cks.
Tallow — Philadelphia, 1 tcs.	Rotterdam, 14 J. Rankine & Son	Sulphur Ore — Pomaron, 1,149 t. Mason & Barry	
Tar — New York, 296 brls.	TYNE. Week ending July 7th.	Wood Pulp — Christiania, 2½ t.	GRIMSBY. Week ending July 7th.
Tartar — Bordeaux, 28 cks.	Barytes — Antwerp, 50 bgs. Tyne S. S. Co.	Zinc Oxide — Antwerp, 3 brls. Tyne S. S. Co.	Aniline Colours — Antwerp, 17 pkgs.
Varnish — New York, 23 brls.	Barytes Carbonate — Rotterdam, 456 bgs. Tyne S. S. Co.	GOOLE. Week ending July 4th.	Hamburg, 6 cks.
	Carbonic Acid Gas — Rotterdam, 50 tubes. Tyne S. S. Co.	Barytes — Ghent, 100 bgs.	Aniline Dye — Hamburg, 10 cks.
	Colours — Rotterdam, 1 cs. Tyne S. S. Co.	Caoutchouc — Boulogne, 3 cs.	Caoutchouc — Hamburg, 10 cs.
	Antwerp, 12 cks. "		Rotterdam, 1
			Extracts — Hamburg, 2 cks.

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 11th.

Ammonia (Liquid) — B. Ayres, 20 cs. £15	Ammonia Salts — Yokohama, 3 t. £107	Ammonium Chloride — Philadelphia, 18 cks. £120	Ammonium Sulphate — Rotterdam, 60 t. £815	Arsenic — St. Petersburg, 10 t. 7 c. £165	Borax — Geelong, 13 c. £15	Carbolic Acid — Hingo, 4 t. 10 c. £230	Caustic Soda — Brisbane, 1 t. 1 c. £54	Chemicals (otherwise undescribed) Melbourne, 10 t. 2 kgs. 1 ck. £112	Citric Acid — St. Petersburg, 3 t. £499	Coal Products — Aniline Dye
										Tar, 10 cs. £143
										Melbourne, 9
										Geelong, 1 ck. 9
										Calcutta, 1
										£27
										Creosote
										Tripoli, 100 brls. £43
										Naphthalene
										Rosario, 99 pkgs. £67
										Paraffin Wax
										Launceston, 188 bgs. £980
										Pitch
										Dunkirk, 180 t. £307
										Rotterdam, 500
										Antwerp, 132
										Dunkirk, 250

New York, 570 bgs. 1,035 cks. 704	Alexandria, 150 brls. 43	Philadelphia, 2,294 bgs. 304	Boston, 450 cks. 292	Tar	Chinde, 8 brls. £7	E. London, 1,875 pkgs. 7	Trinidad, 12 brls. 24	Toluol, 50 dms. £147	Copper Sulphate — Paris, 10 t. £16	Cream of Tartar — Brisbane, 3 tks. 1 t. 5 c. £264	Bluff Harbour, 10	Yokohama, 10 kgs. 37	Sydney, 1 5 81	Launceston, 5 16	Melbourne, 1 66	Disinfectants — Melbourne, 2 cs. 6 t. 7 c. 95	Sydney, 22 72	Penang, 350 dms. 178	Cape Town, 200 45	Rangoon, 30 pkgs. 13	Hypophosphite of Lime — Philadelphia, 9 c. £163	Lime Sulphite — Melbourne, 6 c	Manure — Colombo, 11 t. 5 c. £18	Dundee, 20 8	Montreal, 4 9 50	Gothenburg, 110 275	Oxalic Acid — Sydney, 8 c. £14	Phosphoric Acid — Philadelphia, 20 hmprs. £80	Phosphorus — Rio de Janeiro, 2 c. £26	Potash — Sydney, 1 t. 10 c. £74	Potassium Bisulphite — Melbourne, 1 c. £30	Potassium Chlorate — Rio de Janeiro, 10 c. £30	Potassium Cyanide — Montserrat, 1 cs. £13	Potassium Tartrate — Rosario, 10 cs. £63	Saltpetre — Pernambuco, 11 t. 3 c. £261	New York, 13 15 292	Hobart, 5 6	Launceston, 5 7	Vigo, 1 18 41	Bilbao, 2 10 54
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Sheep Dip — Launceston, 200 cs. £300	Pt. Elizabeth, 62 100 dms. 218	Cape Town, 3 t. 1 c. 100	Soda — Singapore, 5 t. 10 c. £17	Soda Crystals — M. Video, 6 t. 10 c. £15	Sydney, 5 2 14	Algoa Bay, 6 4 16	Stockholm, 16 3 36	Soda Salts — New York, 2 t. 14 c. £50	Sodium Bicarbonate — Hobart, 1 t. 12 c. £12	Launceston, 10 4	Sodium Oxide — New York, 2 t. 13 c. £280	Sodium Tartrate — Montreal, 19 c. £45	Sulphur — Pernambuco, 30 kgs. £14	E. London, 50 110 pkgs. 78	Sulphuric Acid — Cape Town, 1 t. 10 c. £15	Tartaric Acid — Melbourne, 5 c. £24	Brisbane, 13 64
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Ammonium Sulphate — Antwerp, 90 t. 12 c. £906	Alicante, 2 5 34	New York, 4 6 626	Las Palmas, 44 6 633	Barcelona, 50 36	M. Video, 1 1,742	Valencia, 123 18 2 q. 1,464	Newport News, 101	Asbestos — Pernambuco, 1 bl. 1 cs.	Barium Chlorate — Rotterdam, 4 c. £17	Bleaching Powder — Baltimore, 78 cks. 43 cs.	Bombay, 545 95 bxs.	Chicago, 26	Montreal, 132	Newport News, 425 30	Philadelphia, 155	Rouen, 14	Seville, 31	Bone Waste — Rouen, 7 t. £50	Boracic Acid — Boston, 2 t. 3 c. 2 q. £64	Hamburg, 1 3 37	Havre, 1 2 35	Catania, 2 2 6	Borax — Adelaide, 15 c. £18	Guadalajara, 9 11	Rotterdam, 1 t. 19 3 q. 45	E. London, 1 47	Stockholm, 1 17 58	Halifax, N. S., 7 2 8	Antwerp, 10 19	Bilbao, 2 3 1 4	Montreal, 2 13 1 61	M. Video, 1 20	Calcined Magnesia — Trieste, 17 lbs. £20	Genoa, 24 29	Calcium Chloride — Pt. Said, 4 t. 2 c. £10	Carbolic Acid — Hamburg, 1 c. 3 q. £9	Pernambuco, 3 3	Marseilles, 24 t. 10 2 1,500	Yokohama, 2 10 130	Castor Oil — Malaga, 2 brls.	Caustic Soda — Alexandria, 29 dms.	Algoa Bay, 35	Bahia, 70	Baltimore, 600	Barcelona, 130 10 cks.	Bilbao, 20	Boston, 225 75 brls.
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LIVERPOOL.

Week ending July 11th.

Alum — Montreal, 5 t. 16 c. £21	B. Ayres, 5 25	Alexandria, 4 20	Varna, 6 9 46	Havana, 5 18	Bilbao, 1 1 2 q. 7	Toronto, 10 2 19	Alumina Sulphate — Sydney, 11 t. 17 c. £56	Ammonium Carbonate — Rotterdam, 11 c. £18	Barcelona, 1 t. 34	Bordeaux, 1 5 40	Bilbao, 6 11	Sydney, 2 2	Hamburg, 10 18	Ammonium Chloride — Naples, 1 t. £37	Piraeus, 4 c. 2 q. 9	Barcelona, 1 2 37
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MANCHESTER.

Week ending July 12th.

Ammonium Carbonate —	
Antwerp, 10 kgs.	
Bleaching Powder —	
Rio de Janeiro, 10 cs.	
Caustic Soda —	
Rio de Janeiro, 4 dms.	
Chemicals (otherwise undescribed)	
Rotterdam, 10 cks.	
China Clay —	
Rotterdam, 50 bgs.	
Colours —	
Rotterdam, 1 ck.	
Copperas —	
Bahia, 4 cks.	
Cutch —	
Bahia, 12 bbs.	
Dyestuffs (otherwise undescribed)	
Rouen, 20 cks.	
Paraffin Wax —	
Rotterdam, 160 bgs.	
Rouen, 20 cs.	
Salicake —	
Antwerp, 1,050 bgs.	
Sumac Extract —	
Bahia, 3 cks.	
Tallow —	
Rotterdam, 28 cks.	
Tar Oil —	
Antwerp, 8 dms.	
Tar Salts —	
Rotterdam, 57 cks.	

HULL.

Week ending July 7th.

Ammonium Sulphate —	
Antwerp, 813 bgs.	
Dunkirk, 85	
Anthracene —	
Rotterdam, 38 cks.	
Benzol —	
Rotterdam, 100 cks.	
Bleaching Powder —	
Boston, 273 cks.	
Borax —	
Christiania, 2 cs.	
Rotterdam, 18 cks.	
Caoutchouc —	
Stockholm, 2 pks.	
Caustic Soda —	
Bari, 54 dms.	
Harlingen, 17	
Konigsberg, 35	
Trieste, 6	
Wyburg, 2 cks.	
Chemicals (otherwise undes.) —	
Bergen, 1 ck.	
Copenhagen, 20	
Christiania, 30	
Gothenburg, 2	
Hamburg, 30 cs.	
Konigsberg, 1	
New York, 55	
Raval, 12	
Rotterdam, 1	
St. Petersburg, 20	
Stettin, 4	
Venice, 10	
Wyburg, 6	
Colours —	
Catania, 4 cks.	
Cottonseed Oil —	
Amsterdam, 22 c.	
Copenhagen, 200	
Gothenburg, 100	
Hamburg, 148	
Rotterdam, 553	
Dyestuffs (otherwise undescribed)	
Amsterdam, 1 ck.	
Boston, 8	
Konigsberg, 2 cs.	
St. Petersburg, 7	
Raval, 1	
Rotterdam, 10	
Stettin, 37 bls.	
Linseed Oil —	
Bremen, 175 c.	
Bergen, 85	
Copenhagen, 7	
Christiania, 241	
Christiania, 59	
Drontheim, 207	
Hamburg, 138	
Rotterdam, 241	
Trieste, 36	

Logwood —	
Stettin, 36 bls.	
Manure —	
Gothenburg, 99 t.	
Naphtha —	
Antwerp, 12 cks.	
Copenhagen, 3 dms.	
Ochre —	
Amsterdam, 3 cks.	
Hamburg, 2	
Konigsberg, 6	
Painters' Colours —	
Antwerp, 7 cks. 3 cs. 49 dms.	
	45 pkgs.
Amsterdam, 5	
Boston, 80	
Bremen, 2	
Copenhagen, 3	
Christiania, 16	
Christiansand, 9	
Drontheim, 3	
Harlingen, 3	
Hamburg, 20	
New York, 260	
Rotterdam, 4	
St. Petersburg, 34	
Stettin, 20	
Trieste, 4	
Wyburg, 68	
Pitch —	
Antwerp, 382 t.	
Wyburg, 3 cs.	
Slag —	
Venice, 400 t.	
Tallow —	
Gothenburg, 75 cks.	
Rotterdam, 41	
Tar —	
Bergen, 9 bls.	
Hamburg, 3 cks.	
Rotterdam, 6	
Wyburg, 55	
Varnish —	
Antwerp, 4 cks. 1 cs. 32 pkgs.	
Amsterdam, 1	
Copenhagen, 1	
Drontheim, 1	
Gothenburg, 1	
Hamburg, 1	
Rotterdam, 3	

GLASGOW.

Week ending July 12th.

Acetic Acid —	
Canada, 1 t. 18½ c.	£34
Ammonium Sulphate —	
Demerara, 25 t.	£356. 10s.
Russia & Turkey, 103	16½ c. £2,805
Spain, 50	700
Antwerp, 90	700
Hamburg, 489 bgs.	700
New York, 5 t. 3 c.	68
Bleaching Powder —	
Calcutta, 98 t. 13 c.	£1,060
Borax —	
Russia & Turkey, 10 t. 13½ c.	£250
Caustic Soda —	
Russia & Turkey, 19 t. 2 c.	£157
Coal Products —	
Greosote Oil	
Bilbao, 352 t. 3½ c.	£735
Christiania, 25 brls. 10 cks.	17
Danzig, 10	£4. 10s.
Naphtha	
Dieppe, 227 brls.	£798
Pitch	
Russia & Turkey, 50 t. ¾ c.	£108
Amsterdam, 190	266
Dieppe, 260	—
Canada, 75	114
Danzig, 50	75
Dieppe, 260	380
Tar	
Russia & Turkey, 93 t. 18 c.	£150
Twillington, 6	18
Rangoon, 45	45
Canada, 58	103
Danzig, 1,423 brls.	705
Tar Oil	
Danzig, 250 brls.	£160
Colour —	
Calcutta, 1 t. 8 c.	£25
Copper Sulphate —	
Bilbao, 12 t. 7½ c.	£160
Dyestuffs —	
Logwood	
Spain, 5 t. 7½ c.	£42
Sumac Extract	
Spain, 3 t. 16½ c.	£93

Dyestuffs (otherwise undescribed)

Canada, 4 t. 19 c.	£110
Farina —	
Spain, 1 t. 19 c.	£34
Philadelphia, 1	21
Linseed Oil —	
Canada, 8 t. 13 c.	£203
Litharge —	
Canada, 8 t. 18½ c.	£117
Manganese —	
Rotterdam, 10 t.	£100
Manure —	
Spain, 117 t. 12½ c.	£997
Rouen, 10	80
Nitrate of Lead —	
Italy, 1 t. 2 c.	£20
Paint —	
Demerara, 11½ c.	£6. 12s.
Straits, 1	£84
Gibraltar, 53	105
Rangoon, 105	105
New York, 1 t. 16½	£34. 10s.
Painters' Colours —	
W. Indies, 2 t. 14½ c.	£53
Bombay, 4	37
Rangoon, 2	10½
Calcutta, 26	4½
Rotterdam, 1 ck.	6
B. Ayres, 7	16½
Paraffin Wax —	
Russia & Turkey, 64 t. 16½ c.	£1,906. 10s.
Hong Kong, 2,160 lbs.	£30
Italy, 2,289 lbs.	29 t. 14½
Bilbao, 2	60
Rouen, 9½	18
Antwerp, 1	14½
Potassium Bichromate —	
Russia & Turkey, 1 t. 11½ c.	£66
Japan, 5	199
Spain, 20	8½
Rouen, 21	1¾
Danzig, 3 cks.	60
Potassium Prussiate —	
Rouen, 5 t. 7½ c.	£389. 11s.
Canada, 1	7½
Rosin Oil —	
Amsterdam, 16 brls.	£32
Slag —	
Rotterdam, 304 t.	£106
Soap —	
Calcutta, 1 t. 15½ c.	£28. 17s.
Rangoon, 1	9½
New York, 2	15
Sodium Bichromate —	
Spain, 1 t.	£32
Canada, 5	1¾
Tallow —	
Rotterdam, 13 t. 10 c.	£409
White Lead —	
M. Video, 4 t. 9½ c.	£72

TYNE.

Week ending July 7th.

Alkali —	
Amsterdam, 40 t. 2 c.	
Hamburg, 5	18
Rotterdam, 5	4
Odense, 7	11
Antimony —	
Copenhagen, 10 c.	
New York, 60 t.	
Asbestos —	
Antwerp, ¾ c.	
Barytes Carbonate —	
Hamburg, 100 t. 10 c.	
Newfairwater, 10	
New York, 38	7
Bleaching Powder —	
Amsterdam, 27 t. 19 c.	
Antwerp, 14	
Hamburg, 32	4
Christiania, 40	17
Rotterdam, 36	10
Riga, 10	5
Newfairwater, 9	18
Abo, 16	12
Helsingfors, 43	17
Borax —	
Ergasteria, 15 c.	
Caustic Soda —	
Stockholm, 4 t. 18 c.	
Hamburg, 14	10
Christiania, 9	11
Copenhagen, 10	16
Riga, 20	

Archangel, 3	
Abo, 4	7
Helsingfors, 27	2
New York, 72	10
Farina —	
Bergen, 4 t.	
Litharge —	
Amsterdam, 3 t. 11 c.	
Hamburg, 2	19
Christiania, 1	2
Copenhagen, 11	2 cks.
Riga, 11	8
Magnesia —	
Antwerp, 1 c.	
Hamburg, 2	
Rotterdam, 7	
Manure —	
Perrau, 217 t. 5 c.	
Oxalic Acid —	
Copenhagen, 10 c.	
Paint —	
Archangel, 2 t. 16 c.	
Bergen, 1	
Pyrites —	
Kalajoki, 11 c.	
Slag —	
Rotterdam, 126 t.	
Soda —	
Amsterdam, 31 t. 16 c.	
Esbjerg, 100	
Arendal, 5	
Christiania, 25	1
Rotterdam, 30	4
Nakskov, 7	6
Abo, 4	15
Hango, 3	9
Helsingfors, 3	16
Svendborg, 70	9
Soda Ash —	
Stockholm, 5 t. 8 c.	
Gefle, 10	
Antwerp, 10	8
Libau, 5	6
Sodium Sulphate —	
Gothenburg, 220 t. 1 c.	
Sulphur —	
Rotterdam, 5 t.	
Drontheim, 40	
Riga, 50	
Superphosphate —	
Riga, 291 t. 5 c.	
Turpentine —	
Antwerp, 1 qt.	
White Lead —	
Stockholm, 1 t. 18 c.	
Copenhagen, 2	7
Abo, 5	
GOOLE.	
Week ending July 4th.	
Chemicals (otherwise undescribed)	
Rotterdam, 1 ck.	
Coal Products (otherwise undes.) —	
Antwerp, 1 ck.	
Boulogne, 2	3 cs.
Ghent, 13	2
Hamburg, 1	9
Rotterdam, 48	
Dyestuffs (otherwise undescribed)	
Ghent, 10 cks.	
Rotterdam, 46	
Manure —	
Boulogne, 231 bgs.	
Stettin, 5,700	
Pitch —	
Antwerp, 72 t.	
GRIMSBY.	
Week ending July 7th.	
Chemicals (otherwise undescribed)	
Antwerp, 3 cks.	
Dieppe, 5	54 bts.
Coal Products (otherwise undes.)	
Dieppe, 66 cks.	
Dyestuffs (otherwise undescribed)	
Dieppe, 1 ck.	
Salt —	
Antwerp, 660 t.	

PRICES CURRENT.

WEDNESDAY, JULY 18th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	& 10/6
Glacial	..	50/-	
Arsenic S.G., 2000	..	0	14 6
Fluoric	per lb.	0	0 3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	..	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 3/4
Nitrous	..	0	0 1 3/4
Oxalic	nett	0	0 3 3/4
Phosphoric, 1750°	..	0	1 0
Picric	..	0	1 0
Sulphuric (fuming 50 %	per ton	15	10 0
(monohydrate)	..	5	10 0
(Pyrites, 168°)	..	3	0 0
" 150°	..	1	5 0
" (free from arsenic, 145°)	..	1	6 0
Sulphurous (solution) S.G. 1025	..	3	0 0
Tannic (pure)	per lb.	0	1 1
Tartaric	..	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	..	5	2 6
Alumina Sulphate (pure)	..	5	0 0
Aluminoferic	..	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	..	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	..	0	0 2 3/4
Carbonate	nett	0	0 3 3/4
Muriate	per ton	24	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	& 37/-
Nitrate	per ton	44	0 0
Phosphate	per lb.	0	0 10 3/4
Sulphate (grey) London	per ton	13	17 6
" (grey) Hull	..	13	17 6
Aniline Oil (pure)	per lb.	0	0 5 1/2
Aniline Salt	..	0	0 5 1/4
Antimony	per ton	32	0 0
" (tartar emetic)	per lb.	0	0 9 1/4
" (golden sulphide)	..	0	0 10
Barium Chloride	per ton	6	10 0
Carbonate (native)	..	3	10 0
Sulphate (native levigated)	..	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
Liquor, 7 %	..	3	10 0
Bisulphide of Carbon	..	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	..	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta	..	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	1 0
50/90	..	0	1 1
Carbolic Acid (crystallised 40°)	per lb.	0	0 6 1/4
(crude 60°)	per gallon	0	1 8
Creosote (ordinary)	..	0	0 1 3/4
" (filtered for Lucigen light)	..	0	0 3
Crude Naphtha 30 % @ 120° C.	..	0	0 5 3/4
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	..	1	11 6
Solvent Naphtha, 90 % at 160°	per gallon	0	1 4
Lucigen " and " Wells Oils	..	0	0 2 1/2
Copper	per ton	38	11 3
Sulphate	..	14	7 6
Oxide (copper scales)	..	39	5 0
Glycerine (crude)	..	15	0 0
" (distilled S.G. 1250°)	..	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	4 0
Sulphide (antimony slag)	..	2	0 0
Lead (sheet) for cash	..	10	11 3
Litharge Flake (ex ship)	..	13	0 0
Acetate (white ")	..	25	0 0
" brown ")	..	15	15 0
Carbonate (white lead) pure	..	20	0 0
Nitrate	..	19	10 0

Lime, Acetate (brown)	per ton	6	0 0
" (grey)	..	10	5 0
Magnesium (ribbon and wire)	per oz.	0	2 3
Chloride (ex ship)	per ton	2	10 0
Carbonate	per cwt.	1	17 6
Hydrate	per ton	17	0 0
Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	..	17	15 0
Borate	per cwt.	2	12 6
Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 2
Naphtha (Wood), Solvent	..	0	3 7
" Miscible, 60° O.P.	..	0	4 0

Oils:—			
Cotton-seed	per ton	21	0 0
Linseed	..	22	10 0
Petroleum, American	per gallon	0	0 5 1/4
Stearine	per ton	27	0 0
Phosphorus (yellow)	per lb.	0	2 2
" (red)	..	0	2 9
Potassium (metal)	per oz.	0	3 7
Bichromate	nett per lb.	0	0 4 1/2
Carbonate, 90% (ex ship)	per ton	16	15 0
Chlorate	per lb.	0	0 7
Cyanide, 98%	..	0	2 3
Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
" (Caustic Potash) 75/80 %	..	20	0 0
" (Caustic Potash) 70/75 %	..	19	10 0
Nitrate (refined)	per cwt.	1	2 6
Permanganate	per cwt.	3	2 6
Prussiate Yellow	per lb.	0	0 10 1/2
Sulphate, 90 % (ex ship)	per ton	9	15 0
Muriate, 80 % (do.)	..	8	7 6
Silver (metal)	per oz.	0	2 4 1/2
Nitrate	..	0	2 10
Sodium (metal)	per lb.	0	3 0
Carb. (refined Soda-ash) 48 %	nett per ton	4	17 6
" (Caustic Soda-ash) 48 %	..	4	2 6
" (Carb. Soda-ash) 48 %	..	4	0 0
" (Alkali) 58 %	..	3	15 0
" (Soda Crystals)	..	2	10 0
Acetate (ex-ship)	..	14	15 0
Arseniate, 45 %	..	11	0 0
Chlorate	per lb.	0	0 8 1/4
Borate (Borax)	net, per ton	22	0 0
Bichromate	per lb.	0	0 3 3/4
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 ton lots	10	15 0
" (74 % Caustic Soda)	..	9	15 0
" (70 % Caustic Soda)	..	8	15 0
" (60 % Caustic Soda)	..	7	15 0
" (60 % Caustic Soda, cream) (f.o.b.)	..	7	12 6
Bicarbonate	..	5	12 6
Hyposulphite	..	5	10 0
Manganate, 30%	..	16	0 0
Nitrate (95 % ex-ship Liverpool)	per cwt.	0	9 1 1/2
Nitrite, 98 %	per ton	29	10 0
Phosphate	..	15	0 0
Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)	..	4	5 0
Stannate, 40 %	per cwt.	3	0 0
Sulphate (Salt-cake)	per ton	0	17 6
" (Glauber's Salts)	..	1	5 0
Sulphide	..	8	10 0
Sulphite	..	5	12 6
Strontium Hydrate, 100%	..	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7 1/4
Barium, 95 %	..	0	0 5
Potassium	..	0	0 7 1/2
Sulphur (Flowers)	per ton	7	5 0
" (Roll Brimstone)	..	5	7 6
Brimstone: Best Quality	..	3	15 0
Superphosphate of Lime (26%)	..	2	7 6
Tallow	..	25	0 0
Tin Crystals	per lb.	0	0 6
English Ingots	..	70	10 0
Zinc (Spelter)	per ton	16	0 0
Chloride (solution, 96° Tw.)	..	5	10 0

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LATE ADVERTISEMENTS.

TENDER.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

THE Gas Committee of the Wigan Corporation invite TENDERS for the surplus TAR produced at their Gas Works over a period of one, two, or three years, commencing on the 1st of September, 1894.

Particulars and form of Tender may be obtained on application to the undersigned.

The highest Tender not necessarily accepted.

Tenders, sealed and endorsed "Tar," to be delivered to A. SMITH, Esq., Town Clerk, on or before August 14th next ensuing.

Borough Gas Works,
Wigan, July 26th, 1894.

JOS. TIMMINS,
Engineer, etc.

WANTED, by an old-established Firm, foreign brands of White Sugar of Lead, Citric and Tartaric Acids, Tartar Emetic, etc., etc., and all Drysalteries used by Calico Printers and Dyers.—Particulars to J. L., 340, *Chemical Trade Journal*.

SOAPSTONE.—Wanted, in confidence, to treat with one who can give particulars of value, treatment, uses, buyers, etc.—Address, "SOAPSTONE," *Chemical Trade Journal*.

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Our Registered Telegraphic Address is—

"Expert, Manchester."

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10 Words and under

Each additional 10 words

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10 Words and under

Each additional 10 words

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

SEWAGE TREATMENT MADE EASY (?)

TO read the report of the Chairman's address to the shareholders of the Native Guano Co., Ltd., the inexperienced would think that the treatment of sewage had been rendered an easy matter.

The so-called A B C process no doubt has its merits, but it has not solved the sewage problem yet. It has had many years of work with more or less satisfactory results, and truly is the only process which produces a sludge which will sell at £3. 10s. a ton as a manure. It is pleasing to know that out of five hundred and forty-five reports about this manure, only 23 were bad. But the fact remains, and it is admitted, that the process is not popular. Its cost, no doubt, is largely answerable for this. But a process which has for its greatest enemy irrigation cannot be such a very wonderful one, or it would soon gain the upper hand. It appears that the company has been in communication with four hundred places during the past year with a view to adopting the process, but at present it seems to have been tried very little further afield than Kingston.

Professor Dewar undoubtedly speaks most highly of the process, but he did not recommend it for Bradford. It would have been much more to the point if the Chairman, in quoting the opinion of Professor Dewar, had also quoted the opinions of many other experts (who know quite as much, if not more, about sewage treatment) in regard to the superlative merits of the A B C process. Trial at one place only, does not count for much. Good results at a dozen places, other than Kingston, would do more than anything else to establish the superiority of this process over all others, which, unfortunately, give very different results at different places with different sewages. Cannot the directors undertake a few gratuitous experiments on behalf of this particular process?

THE TEACHING OF THE PETROLEUM INQUIRY EVIDENCE.

Though most of the witnesses who have been examined by the Petroleum Acts Inquiry Committee have been disposed to support the lamp faction, it is amusing, to say the least, to see how some of their evidence shatters their own particular theory. Colonel Majendie informed the Committee that the law about petroleum spirit was unsatisfactory. Rather a superfluous piece of information. If mineral oil of 73° flash-point is dangerous enough to lead to a Government inquiry, it stands to reason petroleum spirit is highly dangerous. He also adds that it is utterly illogical to legislate with regard to the most inflammable kinds of petroleum and omit carbon bisulphide, as if on that account it was needless to legislate further about petroleum at all. In a measure he is correct. But how much carbon bisulphide is used in comparison with the thousands of barrels of petroleum which go into consumption. Moreover, the comparatively small quantity that is used is in the hands of persons who know how dangerous it is. Not so with petroleum. At present it bears

the Government stamp of safety, and is used recklessly. If it was known to be dangerous, we venture to think the number of accidents would decrease with things just as they are now. It is evident that the public can take care of themselves with such dangerous articles as naphtha and benzoline which they know to be inflammable. The fires in London last year which were due to these two articles decreased 37 per cent. With mineral oil which the poorer classes have sold to them as non-explosive (the vendor sheltering himself under the Government standard of safety, viz., 73° F) the number of fires increased 27 per cent. *Verb. sat. sap.* The Comptroller of the London County Council thinks only lamps of a certain pattern should be allowed to be sold, and those who sell any other sort fined £5. for each lamp. Only a few words before, after admitting that the present laws were not sufficient for the safety of the public, he complained of the futility of Abel and Redwood's recommendations about the construction and extinguishing of lamps. Why should the lamp maker be compelled to remodel his lamps, and the offending oil be passed over? The oil magnates must remember that it is highly probable that if the poor classes are to be compelled to buy dearer so-called safety lamps, they will cease using oil as an illuminant. It is amusing to notice, in passing, that while those interested in American oil are crying out that 100° flash-point will raise the price of oil to the poor, they are advocating the compulsory sale of lamps which cannot be made and sold for a few pence, as they are now. As to their claptrap argument that 100° standard will make the oil much dearer, it is too worn out to be re-opened up here. Anyone who knows anything at all about the subject will be acquainted with all that has been said in past discussions. Those who are not can readily obtain the necessary information. It amounts to about a halfpenny per gallon—a mere bagatelle to what the Americans will run the price of oil up to, if they regain the monopoly. As it is, prices must go up in a year or so, for no one can afford to practically give petroleum away, as is now the case, whether it is Russian or American. The increase of a halfpenny, or, say, a penny per gallon, would therefore be the lesser evil of the two.

There are one or two other points well worth noticing. The Comptroller of the L.C.C. says the petroleum laws do not regulate petroleum at all. Illuminating oil is absolutely under no control. How is it, then, that the Inspectors under the L.C.C. can say at coroners' inquests that no dangerous oil comes into London; and, by reason of what they say in their position of petroleum inspectors, cause the public to think that they have control of burning oils, and that they and the Government testify as to their safety? Quite recently, at Manchester, it was stated that magistrates were subsidized by large breweries about the time of the Brewster Sessions so as to save difficulties about licences. The statement has not been denied *in toto*, and perhaps L.C.C. inspectors are also amenable to the influence of the same subtle form of persuasion as is said to be exercised upon the "great unpaid." The situation certainly appears to afford scope for a most interesting, though possibly intricate, psychological investigation.

THE SEWAGE OF THE METROPOLIS.—In the County Council's sludge vessels last year there were sent to sea 2,102,000 tons of sludge, necessitating 2,102 trips; and the Council without opposition, has decided to build an additional vessel, thus making six in all. The deodorizing operations were during the past year carried on at 15 different stations, and no fewer than 214 tons of chemicals were used in the process. So satisfactory has been the result of the working of these stations that the costly scheme of sewer reconstruction spoken of some time since, can be, no doubt, with safety very largely modified. The condition of the waters of the Thames at the sewage outfalls has not only been kept up to the satisfactory standard attained last year, but the reports are more favourable still.

ALLOYS.*

[By J. T. HEWITT, D.Sc.]

IN dealing with the subject of alloys, it will be as well to consider the subject from two points of view: (1) the methods by which they are produced; (2) their physical properties; and, if possible, to deduce from these heads some views as to their constitution.

Preparation.—Ordinarily, alloys are prepared by melting together the metals from which they are to be produced, and in many cases metals may be so alloyed in any chosen proportions. But another way of obtaining alloys was discovered by the Belgian chemist, Spring (of Liege) who found that two metals might be alloyed if very strongly compressed. In 1878 and 1880 this chemist had found that various substances when in a powdered condition if subjected to a pressure of several thousand atmospheres form blocks which have the appearance of having resulted from molten material, and some substances which exist in different allotropic modifications pass by pressure from modification of less to those of greater specific gravity. For instance, plastic and prismatic sulphur are both converted by pressure into the octahedral form, which has a higher specific gravity. Passing on now to mixtures of various substances, Spring found that combination might in some cases be effected by increase of pressure, viz., when the specific gravity of the resulting compound was greater than that of the original substance; and in this way an intimate mixture of copper and sulphur may be very readily converted by an increase of pressure into cuprous sulphide. Spring compared these facts with the liquefaction of gases by pressure, and also with the alteration of melting point by pressure, and put forward in consequence the following proposition: "That matter takes up a condition corresponding to the volume it is forced to occupy." Thinking that a good proof of this proposition might be given in the case of alloys, Spring examined the cases of some alloys which he was able to identify by their physical properties; if an alloy were formed the melting point would be lowered, whilst if no alloy had resulted, but only an intimate mixture of the metals employed, the melting point could not very well have changed.

Amongst Spring's experiments may be mentioned the formation of the alloys known so well as Wood's fusible metal, Rose's fusible metal, and brass. For the first of these, cadmium, bismuth, and tin filings were mixed in the necessary proportion, and subjected to a pressure of 7,500 atmospheres; the resulting block was then once more reduced by filing to a fine state of sub-division, and again made into the block condition by compression. The substance obtained in this way corresponded in density, colour, hardness, brittleness, and fracture to Wood's metal, and melted in water heated to 70°; Wood's metal fuses at 65°.

For the experiments with Rose's metal, Pb, Bi and Sn, were mixed in the right proportion, and after two pressings a block was obtained which melted in boiling water; Rose's metal melts at 95°.

In attempting to alloy copper and zinc, Spring found it was necessary to reduce the product to powder five or six times, and then to repeat the pressure, but by this process a block of brass was obtained, agreeing in properties with that obtained by fusion, except that the colour was slightly darker. The repetition of the filing and pressing is not hard to explain in this case, as brass has a density differing but little from that of the metals it is produced from, hence the first effect of compression is merely to produce a conglomerate of the two metals, instead of an alloy in which the existence of the two metals cannot be detected by sight.

It is interesting to note in this connection that an inverse change has also been effected in some cases, thus Spring and Vairt Hoff have found that the double calcium copper acetate $\text{Ca Cu}(\text{C}_2\text{H}_3\text{O}_2)_4 \cdot 8\text{H}_2\text{O}$ may be decomposed by long continued pressure into its constituents. Here we have the double salt with a less specific gravity than its constituents, and it obeys Spring's law and takes up the form it is compelled to.

Another way by which alloys may be produced, is by heating the intimately mixed components to a temperature higher than the melting point of the alloy, but not so high as the melting points of the individual metals from which the alloy is to be produced; such a method was observed by Hullock, who did not employ increased pressure. (*Zeit. f. phys. Chem.* II. 378)

Physical Properties.—From the year 1860 onwards, a series of important researches on the electrical conductivity of alloys was published by Dr. Matthiessen, and he came to the conclusion that the conductivity curves assume three distinctive forms, either a U as with gold-silver alloys, L shaped as in the copper-tin series or nearly a straight line with alloys of lead and tin. Matthiessen also came to the conclusion that in certain alloys the metals that enter into their composition assume allotropic forms.

The passage of a current of electricity through various molten alloys has been experimented upon. Gérardin has stated that electrolytic decomposition takes place, but this has been denied by Obach, and Roberts-Austen was unable to decompose alloys of lead with gold or silver by a current of 300 amperes; he considers that there may possibly

* A paper read before the People's Palace Chemical Society.

be a group of bodies between true alloys and true electrolytes, in which a gradual change from metallic to electrolytic conduction occurs. This would be analogous to the case of the sulphides of silver and copper, which conduct in the metallic manner at ordinary temperatures, but undergo electrolysis when the temperature is increased.

We now pass on to a consideration of the ways in which alloys may be regarded. An alloy may be looked upon very much as a solution which has solidified, and in the case of solutions we have two great theories in vogue, one rather more so than the other. The first of these theories, which is known as the "hydrate theory," supposes that when a solid substance is dissolved in a liquid a number of liquid compounds of solvents and dissolved substances are formed; and it would therefore be of advantage to isolate the compounds if possible. Such work has been attempted and described by Pickering in the case of aqueous solutions, and a good many attempts have been made in the case of alloys to obtain compounds of definite composition. Coming to the method of liquation by which metals may sometimes be separated from one another, we have the cases given of the alloys Cu_3Sn , Cu_4Sn , and $\text{Cu}_{17}\text{Sn}_2$, which refuse to liquate on heating. If we took alloys of copper and tin of varying composition we should expect then to find some break in the physical properties at those points where the compositions denoted by these formulae were reached. Such have been observed, Lodge finding electrical conductivity a minimum at Cu_4Sn , and a maximum at Cu_3Sn . Calvert and Johnson getting similar phenomena for the heat conductivity. Mr. Laurie also worked out a very ingenious method depending on the extent one metal was polarized when another metal was alloyed with it.

From the evidence just quoted it would seem as if definite compounds of metals could be obtained, and an alloy would then probably be an intimate mixture of such a compound with an excess of one or other metal.

But there is another way in which we may look on alloys, that is from the standpoint of the physical theory of solution.

The application of the physical theory of solution to the case of alloys has been attacked by the two Cambridge chemists, Heycock and Neville, who during the past few years have published a succession of papers in this direction. If when a small quantity of one metal is dissolved in another in a state of fusion, the phenomena are analogous to those of the solution of a substance in a solvent, we should expect the dissolved metal to lower the melting point of the solvent metal in the same way that the freezing point of any other solvent is lowered. This we know to be true qualitatively, alloys usually melting at a lower temperature than their constituents. It now remained to make quantitative determinations, and to see if Raoult's laws as to the freezing points of solvents applied to the case of metals.

Raoult's laws are:—

1. The fall of freezing point of a solvent varies as the weight of substance dissolved.
2. Molecular weights of different substances produce the same fall whatever the substance may be.
3. If a constant number of molecular weights of the solvent be taken, the fall produced is independent of the nature of the solvent.

Heycock and Neville worked with the alloys in blocks of iron, stirring them whilst melted with thermometers, they could read to $\frac{1}{30}$ of a degree, at the moment of solidification the highest temperature observed was recorded and taken as the melting point of the alloy. In this way Raoult's first law was found to apply, the second also was probably true, and if one assumed that mercury dissolved in another metal consisted of molecules containing only one atom, as is true for mercury in the gaseous state, it followed that the other metals in solution also possessed molecules consisting of only one atom in most cases.

Raoult's third law proved, however, to be probably incorrect. Many metals were used both for solvent and dissolved substance; in the case of gold dissolved in sodium, it was found that the sodium was saturated when 15 per cent. of gold had been added. In certain cases effects were observed very similar to those obtaining in ordinary well-known cases of solution. Silver proving to be insoluble in sodium, an attempt was made to bring it into solution by first amalgamating it with mercury and then adding this amalgam to the sodium; but the lowering of freezing point observed was entirely accounted for by the mercury that had been added, the silver having been probably thrown out of solution in an exactly similar way to the manner in which resin is precipitated when water is added to its alcoholic solution. As the alcohol mixes with the water whilst the resin separates, so had the mercury alloyed with the sodium whilst the silver was not dissolved.

Experiments were also made to see the effect of adding two metals to an excess of a third solvent metal, and here the effects were found to be independent of one another. Gold was first added to tin, and the freezing-point curve plotted; then on adding cadmium, a further regular fall was produced, the effect being independent of that of the gold. After a certain addition, irregularities, however, were found in the curve such as are represented in the diagram.

Increasing concentration should produce increased osmotic pressure, and hence deviations resembling those observed by Anagot in the case of gases should be found, i.e., the atomic fall should not be so great at a greater as at a less concentration. Polymerisation at increased pressures (concentrations) might be expected, as in the cases of acetic acid, iodine, and hydrogen fluoride, but no evidence of this has been obtained. There is yet another way in which atomic falls less than the theoretical might be brought about, that is, that a portion of the solvent metal at the moment of freezing might carry down some of the dissolved metal with it. This would decrease the osmotic pressure, and as the work done before solidification would not be so great, a smaller reduction of temperature would take place before freezing set in. This cause might in extreme cases even bring about a raising of the freezing point, and such has in fact been observed in the cases of antimony in tin, antimony in bismuth, and silver in cadmium. Whilst the precipitate which separates is poorer in dissolved metal than the liquid, there must be a compression of our hypothetical gas and a lowering of freezing point, if on the other hand the precipitate contains more of the foreign metal than the liquid portion, then the sign of the work done is changed, and the freezing point is raised. In these cases the precipitate probably consists of a definite chemical compound of the two metals.

That definite compounds are obtained in certain cases was proved by Heycock and Neville, by dissolving gold in a large excess of cadmium, and then distilling off the excess of cadmium in a vacuum. The alloy thus left gave analytical numbers corresponding to the empirical formula Au Cd .

	Calc.	Found.
Au	63.71	63.98

The alloy somewhat resembles cadmium in appearance, is scarcely attacked by cold nitric acid, but has the cadmium removed by hot hydrochloric or nitric acid.

This is very interesting as showing us how silver and cadmium probably also unite together, with the result that silver dissolved in cadmium raises the freezing point of the latter, the separated substance being richer in silver than the remaining liquid.

The conclusions which I think we may be justified in drawing from Heycock and Neville's work are—

1. That in certain cases compounds of two metals may be obtained.
2. That in the majority of cases the alloying of one metal with another merely means that we obtain a solution of one metal in another in the same way that sugar may be dissolved in water, we lower the freezing point of the solvent metal just as we lower the freezing point of the solvent water.

GAS DRIVEN TRAM CARS.

AN account was given in the *Journal* a few months since of the trial of the Luhrmann gas car at Croydon. It appears that these cars are now going to be adopted for daily use. The machinery occupies the space under one of the seats of the car, whilst one of the gas-holders is carried under the opposite seat, the other two holders being placed transversely under the car framing. The three reservoirs will hold a sufficient supply of gas to serve for an eight-mile run. The car is about 18ft. long, and, with the machinery, weighs $5\frac{1}{2}$ tons. It is driven from either end, there being a starting and stopping lever and a hand-brake on each platform. The motor, which is of the Otto type, and is specially constructed for tramway work, has a slow and a quick speed, but the latter cannot exceed eight miles an hour—the maximum speed allowed by the Board of Trade. The ignition of the charge in the motor cylinders is effected by electricity, and the cylinders exhaust into a condenser, so that no smell arises, and no public nuisance is created by the escape of the products of combustion into the atmosphere. The charging-station is at the depot of the Croydon and Thornton Heath Tramways Company at Thornton Heath, where an 8-horse power Otto gas engine drives a compressor. By this latter the gas, which is taken from the gas company's mains, is pumped into a steel cylindrical receiver 25ft. long and 4ft. diameter, at a final pressure of ten atmospheres as a maximum, or 150lb. per square inch. This plant is equal to the supply of five tramcars, the number which it is intended to place on the line at first. Five more are to be added in due course, when another compressor and receiver will be put down and will be driven by the present engine, which is of sufficient power for the purpose. From the receiver a pipe is laid down to the tramcar charging-point, the cylinders on the car being charged in the same way as those of railway carriages are charged with gas for lighting purposes. The pressure in the tramcar cylinders is about eight atmospheres, or 120lb. per square inch, at starting, and the cost of the gas used is stated to be 1d. per mile with a fully-loaded car. The trial, which took place last week at the instance of the Traction Syndicate (Limited), was conducted without hitch or hindrance of any kind. The car is going into regular traffic at once, and the other four, completing the first set of five, are shortly to follow.

Official Memoranda.

(From the Board of Trade Journal.)

THE CHANGES IN THE CANADIAN TARIFF.

(Continued from p. 400, Vol. XIV.)

THE following is a continuation of the abstract of the changes which have been made in the Canadian Tariff:—

	Rate of Duty 10% ad val.
Wood pulp.	
Glucose or grape sugar glucose, syrup or corn syrup or any syrups containing admixtures thereof	1 cent.
Nitro glycerine, giant powder and other explosives	4 cents.

The following are on the free list:—

Acids for chemical and other purposes not specially provided for	Aniline salts and dyes
Alum in bulk	Aniline oil, crude
Aluminium metal, sulphate, chloride and oxide, alum cake, ammonia, and sulphate.	Annatto
	Antimony salts
	Arsenic
	Bones, crude, not ground, calcined, or steamed

TARIFF CHANGES.

Salts of sulpho and di-sulpho anthrachinone when imported into Russia are subject to a duty of 2 R. 40 cop. per pood gross. Hydrated oxide of iron imported into the U.S.A. is dutiable at 25% *ad valorem*. Magnesite bricks for lead smelting furnaces are also dutiable at 1.25 dollars per ton. The duty on crude mineral oil imported into Mexico is now 3 cents per net kilogram, instead of 2 cents per gross kilogram. By crude is meant the first product of the distillation of shale or crude petroleum, the product being unfit for lighting purposes.

PETROLEUM IN THE CAUCASUS.

Discoveries of petroleum were made some time ago in the Northern Caucasus, and especially in the district of Grosnoje; later soundings have given very remarkable results.

During the month of October, 1893, soundings were made in this district to a depth of 440 ft. The results obtained were very good as regards quality and quantity.

This experiment was an innovation, for hitherto wells of little depth, like those sunk at Baku, had been made.

The yield of the wells referred to was, for a period of four days, 200,000 poods, or about 3,280 tons. This yield would probably have been larger if, owing to the manner in which the pipes were connected, a large quantity of water coming from the upper beds of soil had not mixed with the naphtha.

The product was gathered in a reservoir built in the ground, and representing a capacity of 10,000 tons; its further treatment showed that it contained a greater proportion of lighting oil and a smaller proportion of residues than Baku petroleum.

More recently two other wells have been opened by another firm, with diameters of 20 ins. and 9 ins., and new soundings are now being suggested. Carriage will be effected by the Vladikavkaz-Petrovsk railroad.

THE WINDERMERE SEWAGE POLLUTION CASE.

MR. JUSTICE COLLINS last week gave judgment in a case in which Mr. Townson brought an action against the Bowness Local Board for polluting Lake Windermere with sewage, and sought to obtain an order under section 10 of the Rivers Pollution Act, 1876, requiring the defendants to abstain from pouring their sewage into Lake Windermere, and such other relief as the Act provided or contemplated, and as the nature of the case required.

Mr. Justice Collins gave judgment for the plaintiff, saying, they began with the admission that the Local Board did pass sewage into the lake after it had been subjected to a certain process of treatment, and that it entered at the rate of 100,000 gallons a day. They treated it once every twenty-four hours. The question, therefore, was whether the defendants were using the best practicable and available means to render harmless the sewage which fell or flowed into the stream. He thought it was clear upon the evidence that the effluent in its present condition left something to be desired. He was inclined to that opinion upon the balance of evidence before him, and he had since had the advantage of looking at the place himself. On the evidence called by Mr. Ambrose it seemed to him that the effluent was, as he had said, an

effluent leaving something to be desired. Indeed, he remembered how one of the witnesses described the effluent which he himself, given a free hand, was capable of producing; his eyes seemed to glow and his imagination kindled as he described the purity and sparkling qualities of the effluent, which it was capable of producing by his own process. The effluent which he (the Judge) saw was very far from sparkling, and therefore he thought he was justified in saying that the effluent, in its present condition, was a sewage effluent which left something to be desired. Then came the point as to whether there was any practicable or available means by which it could be improved. A witness called by Mr. Ambrose certainly seemed to think that it could be improved, and that he could improve it himself. He had also the practical fact before him that a year or two ago the Local Board did themselves promote a measure for acquiring another piece of land for the purpose of improving the treatment to which the sewage was subjected before it was passed into the lake. Coming to the question of what the terms of the order ought to be, it seemed to him that the order he had the power to make was an order requiring the defendants to abstain from the commission of the offence, that was to abstain from sending any sewage into the lake without using the best practicable and available means of rendering it harmless. He thought that ought not to take effect for at least six months. It was very easy for the defendants to put beyond all question whether they were or were not using the best practicable and available means to render their sewage harmless, for all they had to do was to obtain the certificate of the inspector under the Local Government Board to that effect. That was the best evidence they could have, and they would then be absolutely secured from any interference.

Parliamentary Jottings.

AN OFFICIAL AGRICULTURAL JOURNAL.

In the House of Commons, last week, in reply to Mr. Cobb, Mr. H. Gardner stated that the Treasury had now placed at his disposal the funds necessary to enable the Agricultural department to issue a journal. It was proposed to make the journal the medium for conveying information as to matters of interest in connection with agriculture at home and abroad, the crop prospects of foreign countries, and other particulars obtained from sources of intelligence to which the Department had access. There would also be included notes on dairying, fruit farming, poultry rearing, and the smaller rural industries, together with short accounts of noxious insects and fungi, and statistics as to agricultural production, imports and exports, &c. The first part would be issued before the end of September, at the price of sixpence.

SELECT COMMITTEES.

FOOD PRODUCTS ADULTERATION.

In the evidence which has been given before this Committee the following is so far the most practical and pointed:—

Colonel Curtis Hayward, of the Dairy Produce Defence Association of Gloucestershire, said that the association had procured many specimens of butter in Cheltenham and Gloucester for the purpose of testing their purity. The specimens were purchased by women, because if the purchase were made by men the suspicions of the shopkeepers were excited. Of 64 specimens of butter purchased in Gloucester and submitted to the public analyst, 15 were found to be adulterated with from 20 to 50 per cent. of foreign fats. In Cheltenham the percentage was lower. The association had now suspended operations for want of funds, but the work which it had done had shown the necessity for the more stringent enforcement of the Acts of Parliament by the local authorities. In Gloucester the authorities were very apathetic. It was very desirable to stop the colouring of margarine, so that that substance might be white like the beef fat from which it was made and distinguishable from butter. Butter with a high colour was in much greater demand with the public than pale butter; and to prohibit the colouring of English butter while foreign butters with colouring matter were allowed to enter the country would be most unfair to the home producer.

The mixture of margarine and butter should be made illegal. The adulteration of butter very largely influenced the prevailing low prices of butter. The large butter merchants demanded absolute uniformity in the butter they bought, and this was quite impossible with pure English butter. The result was that the London consumer very seldom tasted English butter at all. He should be glad to see a regulation compelling margarine to be distinctively coloured, but he did not think that such a regulation was practicable.

Mr. G. Embrey, public analyst of the city of Gloucester, said that 25 per cent. of all the butter that was sold was adulterated, though not more than 10 per cent. was detected. The law could be amended to

prevent this adulteration. The inspectors should be given greater liberty in employing people to purchase samples for them, and samples of imported butter should be analysed when landed. The local authorities should be compelled to purchase samples for test with sufficient frequency, and where they were not active enough, some central outside authority should be able to step in and do the work. The addition of antiseptics both in foreign and English butter should be absolutely prohibited. English butter rarely contained more than 16 per cent. of water; when that standard was exceeded, adulteration existed. It was quite possible for analysts to fix a standard for milk which would not inflict hardship. His experience showed that a percentage of 11.5 for the total solids was a fair standard. He would hold the retailer responsible for selling adulterated articles imported from abroad. There was no doubt that the low standards fixed by Somerset House prevented public analysts in the country from reporting cases of adulteration which they detected. To a small man disagreement with Somerset House was a most serious matter, even if he were perfectly right.

Prof. Long suggested that a standard of milk should be established, viz., 3.2 fat and 12 total solids; that separated and evaporated milk should be labelled as such, and that coloring milk should be prohibited altogether. Further, that it should be illegal to colour or mix margarine with butter, and that margarine makers' and dealers' places of business should be subject to inspection. He advocated a standard for water in milk, and urged that condensed milk should be labelled "skimmed" in large letters, with the country of origin, when it was not prepared from whole milk.

Through the working of a dairy commission in New York State and of a bureau in Massachusetts, margarine had been practically driven out of those States. He believed that margarine was imported into the south of Ireland from France to be mixed with butter. He believed also that skim-milk was largely used in the manufacture of condensed milk. Butter was more largely tampered with in France than in Germany; but butter imported from Hamburg, and tested by the Manchester Association showed adulteration in six cases out of 11, and the other five were doubtful. In the last five years the import of margarine by Holland amounted to 155 millions of pounds; and the exports to England were equal to five pounds per head of the population.

THE PETROLEUM ACTS INQUIRY.

The Select Committee of the House of Commons appointed to consider the subject of petroleum storage and dangerous lamps sits on Fridays, under the presidency of Mr. Mundella. Colonel Majendie, inspector of the Board of Trade, gave evidence as to the powers of the three Acts dealing with the subject. The circumstances attending the introduction of the Hawkers' Petroleum Act of 1881 were somewhat curious. They arose from a decision of the Court of Queen's Bench, in which it was decided that petroleum could not be kept for hawking unless the cart was licensed. The law officers decided that a cart could not be licensed, as it was not a place. The Act of 1881 was accordingly introduced, and opportunity was taken to put the sale by hawking, &c., on a permanent footing. That Act was a permanent Act.

In answer to Captain Hope, he said that the general aspect of the question as to conveyance and storage of petroleum was more important than the question of the flash-point and the question of lamps. Lamp accidents were very numerous, and he strongly recommended legislation as to lamps. No reports were made to the Home Office of accidents of any sort in relation to petroleum. His information with regard to accidents had been chiefly concerned with the London accidents, because he had been more in contact with the London County Council, who had taken much interest in this particular branch of the subject.

By Sir H. Roscoe: The regulations on the Continent were much more stringent than in this country with regard to the licence of oils. There was no single country which did not put some form of licence on the storage of mineral oils, and in this country no licence was required to store any quantity. As far as the spirit was concerned the present law was not sufficient. Even if nothing was done with regard to mineral oil, the law was in an unsatisfactory state with regard to the spirit. He had received representations since 1892 with regard to the flash-point of oils, and quite recently from the town and corporation of Birmingham. The representations were to the effect that the flash-point should be raised; 100° Fahr. had been mentioned as the point to which the flash-point should be raised. As to the question of danger when the temperature rose above the flash-point of 73°, of course there would be danger if that were an open test flash-point, but it was the artificial flash-point created by the gradual accumulation of vapour in a closed vessel. It was practically equivalent to an open test of 100°. It was utterly illogical to legislate with regard to the most inflammable kinds of petroleum and to leave out of consideration bisulphide of carbon. The Bill of 1891 recommended that turpentine should be treated as an inflammable liquid if stored in the same dépôt as petroleum. It was a matter for consideration whether ether should not be

dealt with. Those who desired to disturb the existing arrangement with regard to the flash-point must prove the necessity of raising it.

Mr. A. Spencer, Comptroller of the London County Council, was next called. He said that the County Council had the administration of the Petroleum Acts in London. He had conducted that administration for the last 15 years. The existing legislation with regard to petroleum was not sufficient for the safety of the public. He was strongly of that opinion. In the main the Petroleum Acts did not regulate petroleum oil at all. They simply regulated a spirit which was a product of petroleum, and was a small matter as compared with the oil in daily use in every household, and stored in large quantities. The oil burnt as an illuminant was absolutely under no control. Various representations had been made to different Governments, but without much success, with respect to more efficient supervision, and especially with respect to petroleum lamps. The only power which any local authority had in dealing with petroleum oil was to sample it on importation. That coming to the port of London was sampled periodically to see that it did not flash below 73°. No such case had occurred in the last 12 years. The average flash-point was above 80°. With respect to the mineral spirit, which did come under the Acts there were in London 830 licensed premises where it was sold. The County Council required that the arrangements for storage should be satisfactory, but there was no *maximum* fixed beyond which a licence would not be granted. There were 300 licensed premises in London where petroleum was used for the purposes of trade. The use of the oil by the public was decreasing, but its use for trade purposes was increasing. The County Council had taken great pains to secure that the conditions under which the work was carried on in these premises should be such as to protect the workers. The trade were ready to take proper precautions. In 1888 there were 929,678 barrels of petroleum oil and spirit brought to London, of which only 37,000 were spirit; and in 1893 there were 1,575,000 barrels, of which only 59,000 were spirit. The total quantity brought to London in these six years was 7,050,000 barrels, of which 6,755,000 were oil, and 294,000 were spirit. Each barrel contained about 42 gallons. There were now four importation wharves inside London. There had been a change in the methods of distribution, the oil being generally carried in tanks instead of in barrels. The Bill of 1891 would afford sufficient remedy, with the additional provisions that petroleum spirit should be conveyed in metal vessels and not in barrels, and that the sale of dangerous lamps should be prohibited. There would be no material advantage to the public safety in raising the present flash-point. The most serious public danger was in the use of unsafe lamps. The annual return of the Fire Brigade stated that in 1881 the total number of fires in London was 1,991, of which 114 were due to lamp accidents, and caused five deaths, together with 11 cases of injuries. In 1893 the total number of fires was 3,410, of which 456 were due to lamp accidents, and caused 24 deaths and 13 injuries. In the year ending the 31st of March last the total number of fatal lamp accidents in the County of London was 36, and they involved the loss of 43 lives. Lamp accidents were invariably caused by the lamps being improperly constructed, or constructed of improper materials, and generally from both causes together. The results of a long and patient series of experiments by Sir F. Abel had been embodied in a series of recommendations as to the construction of lamps, and these recommendations the County Council issued to all manufacturers; but they had effected very little improvement, as there was no power to enforce them. Out of 100 shops visited safety lamps were sold in only 10; the great bulk of the stock was always of non-safety lamps, and the demand for the safety lamps was very small. All the public asked for was an ornamental lamp; there was no concern at all for safety. The restriction of the sale of dangerous lamps was the only hope of effecting a change. He would exclude absolutely the use of china, glass, or porcelain for lamp reservoirs, and he would have a metal tube to enclose the wick from the burner to very near the bottom of the reservoir. These changes, if effected in the ordinary dangerous lamps, would cost very little. For many years no accident or death had occurred in London in which the use of a safety lamp was involved. He recommended that the Home Secretary should be given power to issue specifications for the construction of lamps in which mineral oils were burnt, and these might be altered from time to time. Anyone selling lamps not in accordance with these specifications should be liable to a penalty of £5, in respect of each lamp, and to forfeiture of the lamp. The most dangerous lamps were those which were imported, and it would be easy to intercept these at the ports.

The examination of the witness was not concluded when the Committee adjourned.

THE SANITAS COMPANY, LIMITED.—The directors have declared an interim dividend at the rate of 10 per cent., per annum, for the six months ended June 30th last, free of income-tax, payable on and after September 1st next. The transfer books will be closed from August 25th to August 31st next.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before the Master of the Rolls, Lord Justice Kay, and Lord Justice A. L. Smith.)

NOBEL'S EXPLOSIVES COMPANY (LIMITED) v. ANDERSON.

In delivering judgment in this case, which was an appeal against the decision of Mr. Justice Romer,

The Master of the Rolls said that this was a dispute between the Crown and Mr. Nobel, the holder of a patent, which had been tried as if it had been an ordinary dispute between a patentee and a person charged with infringement. The case had been tried before Mr. Justice Romer, who, after an inquiry lasting 13 days, had no difficulty in coming to a conclusion on the matter. The appeal had occupied three days and a half, and the result was that he had arrived at the same opinion as Mr. Justice Romer. The law relating to the question in dispute appeared to be simple, and there seemed to be little difficulty in applying that law to the particular facts of the case. They had to deal with a patent and an alleged infringement. The first thing to do in such a case was of course to construe the patent. It had been suggested that there were different canons of construction applicable to different kinds of patent. But in his opinion, whether a particular patent was what had been called a pioneer patent, or whatever kind of patent it might be, the canons of construction to be applied were in all cases the same. And, further than that, he thought that those canons of construction were the same as were applicable to every kind of written instrument. The first rule was this—that the Court ought to construe the instrument as if they were construing it the day after it was written. They could not construe this patent, as they had been invited to do by Mr. Moulton, by taking into consideration anything which had subsequently been done by the defendant. The next rule was that they had a right to know and to take into consideration the state of circumstances existing generally at the time with regard to the subject matter of the instrument, including, of course, the general knowledge with regard to that subject matter. If the words of the instrument were doubtful, the consideration of those circumstances might lead the Court to give them one meaning rather than another. At the time when this patent was granted there existed three dangerous explosive substances which were well known in the chemical trade, both wholesale and retail. The first of these was nitro-glycerine, which seemed to have been a very violent explosive. Then there was a substance called nitro-cellulose; and it was clear that this was of two kinds—viz., soluble nitro-cellulose and insoluble nitro-cellulose. That distinction pointed to solubility in ether-alcohol. Insoluble nitro-cellulose was very much more explosive than soluble. Now Mr. Nobel, in dealing with nitro-glycerine and nitro-cellulose, each of which was a very dangerous substance to handle, found that he could, by combining them in a particular manner, produce a compound in which each tamed the other. He thought he might combine, and he did combine, nitro-glycerine with soluble nitro-cellulose, which was the less violent explosive of the two kinds, but he did not dare to attempt to combine it with the insoluble nitro-cellulose. Under those circumstances he obtained the patent now in question, and in his specification he claimed expressly for a combination of nitro-glycerine with soluble nitro-cellulose. If the Court had had to construe that patent the day after it was granted, it was clear that they could not have held that it included a claim for a combination with insoluble nitro-cellulose. And if anyone had at that time produced such a combination, it would certainly not have been an infringement. He thought it could not be doubted that Mr. Nobel had intentionally and deliberately left out insoluble nitro-cellulose in making his specification, because such a combination would have been too dangerous. Insoluble nitro-cellulose was not claimed by this patent, and therefore was not within it. Now, did what the defendant had done constitute an infringement? In order to make out such an infringement, it would be necessary to show that the defendant had made use of a method which was a colourable imitation of the plaintiffs' method. It could not be said that the defendant here had gone colourably near to what the plaintiffs had done. The defendant, after a course of experiments, had discovered that it was possible to combine nitro-glycerine with insoluble nitro-cellulose, a combination which Mr. Nobel had deliberately rejected. He (the Master of the Rolls) thought that in this combination, which was now complained of as an infringement of the plaintiffs' patent, the defendant kept far away from that in respect of which the plaintiffs claimed. If Mr. Nobel's claim had really been such a claim as Mr. Moulton had tried to represent it, that is, if he had claimed for a combination of nitro-glycerine with nitro-cellulose simply, without drawing any distinction between soluble and insoluble, he was not prepared to say that what the defendant had done would not have

been an infringement. But Mr. Nobel, having deliberately omitted insoluble nitro-cellulose in his specification, and having thereby in his claim made soluble and insoluble two different things, could not now be heard to say that they were the same thing. The defendant had not used the same material as the plaintiffs, and therefore there had been no infringement. Mr. Moulton had argued that the defendant had made use of soluble nitro-cellulose because of necessity the insoluble nitro-cellulose which he used must have contained a certain amount of soluble. But that argument did not show them to be the same thing. He agreed with the judgment of Mr. Justice Romer, and the appeal must be dismissed.

Judgment accordingly, Lord Justices Kay and Smith concurring.

MANCHESTER ASSIZES.

NISI PRIUS COURT.

(Before Mr. Justice Collins and a Special Jury.)

REDDAWAY v. BANHAM.

In this case the plaintiffs, Messrs. F. Reddaway and Co., Limited, belting manufacturers, sought for an injunction restraining the defendants, Messrs. G. Banham and Co., Limited, also belting manufacturers, from continuing to use the word "camel" in such a manner as to deceive purchasers of belting into the belief that they were obtaining goods manufactured by the plaintiffs. The plaintiffs had brought this action to protect a very large trade which belonged to them in what was known as camel-hair belting. They also claimed damages. It was not an action for the invasion of a trade mark, which of course was the property of the person who registered it. What the plaintiffs said was that their goods and their goods only were known all over the world as camel-hair belting, and that the defendants were manufacturing and selling goods under the same name, and so practically disposing of them as if they were the plaintiffs' goods. Mr. Reddaway had been engaged in the manufacture of belting for some time prior to 1877. In that year he began to experiment with a kind of yarn used in the making of carpets and composed of wool and hair, but principally hair. He found the material very suitable for belting, and soon put the new manufacture on the market. He advertised it in 1877 as woollen belting, in 1878 as worsted belting, and in 1879 as camel-hair belting. The last name he had used ever since, and he had spent about £18,000. in advertising it. He had adopted the figure of a camel as a trade mark. It was now well known throughout the world, and particularly in India, and it was part of the plaintiffs' case that camel-hair belting had become synonymous with Reddaway's belting. Between 1879 and 1890 three firms had tried to adopt the same name for their goods, but on being remonstrated with by the plaintiffs they had given the name up. In 1891 Mr. Reddaway found that a number of other firms had taken the name. In one case he took legal proceedings and obtained an injunction; and in all the other cases, except one, his competitors ceased to use the name camel-hair belting. The exception was the present defendants. Mr. Banham, who had turned his business into a limited liability company, had at one time been in the employment of Mr. Reddaway.

Mr. F. Reddaway was the first witness called. He described the way in which he first came to manufacture camel-hair belting, and spoke of the various proceedings taken by himself and the firm to prevent other manufacturers from applying the words "camel-hair belting" to the goods they sold. Mr. Banham at one time worked for him. Afterwards he set up as a manufacturer of belting, and had now turned his business into a limited liability company.

A number of witnesses were afterwards called to prove that they always understood by "camel-hair belting" the belting made by Messrs. Reddaway and Co.

Mr. Bigham said he admitted that in the last fourteen years this belting had been sold as "camel" or "camel-hair belting" exclusively by Mr. Reddaway, except in the instances that had been mentioned where he had interfered.

Mr. Gully said he was afraid that unless Mr. Bigham was prepared to go further than that it would not shorten the case very much.

Evidence taken on commission at Bombay and Calcutta was then read, and the case for the plaintiffs closed.

Mr. George Banham, in cross-examination by Mr. Gully, said there might or might not be a written agreement between George Banham and Co., Limited, and Julius Rolla, of Frankfort, granting the sole agency for the sale of Banham's manufactures in Germany to the latter person. Subsequently he admitted that there was such an agreement, but explained that he did not know whether the agreement was "ratified" or not. He had got counsel's opinion to the effect that the agreement was not valid. A circular issued by Rolla advertising Banham's camel-hair belting was a little different from a similar circular of Reddaway's, but not much. He never saw the circular till July, 1893, when he wrote to tell Rolla to discontinue using it. He was not aware that Rolla was still using the circular.

The Judge, in summing up, told the jury that the one question that lay at the root of the whole matter was whether the name "camel-hair belting" was so closely identified with the plaintiffs' manufacture that in the market and among people who dealt in the material the term was understood to mean Reddaway's belting. The plaintiffs' case depended upon their being able to prove that condition, and should they fail to establish it they had no case at all.—Verdict for the plaintiffs, with costs on the higher scale.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending June 30th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.44	0.27	0.38	Nil.
South Metropolitan Gas Co.	6	16.81	10.53	0.71	Nil.
Commercial Gas Co.	2	16.65	7.5	0.7	Nil.

The supply for week ending July 7th was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.47	9.68	0.41	Nil.
South Metropolitan Gas Co.	6	17.01	10.26	0.78	Nil.
Commercial Gas Co.	2	16.7	8.9	0.75	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cb. ft. of gas on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

THE WIDNES TECHNICAL SCHOOL.

THE foundation stone of a free library and technical school to be built by the Corporation, was laid at Widnes, recently. The site, which is in Victoria Square, close to the Town Hall, has been presented to the Corporation by the trustees of the Leigh estate. The buildings are to cost about £10,000. The designs, which are by Messrs. Woodhouse and Willoughby, Manchester, show a very handsome front to the Square, and in form and colour the schools will come in admirably with the Town Hall and other new buildings round about. The style is English Renaissance, and the material to be used is red Ruabon brick, with terra-cotta dressings. In the technical school ample provision is to be made for the teaching of chemistry, the most important technical subject in the Widnes district. The laboratory will have accommodation for about fifty students, and there will also be a large chemical lecture theatre. One or two handicrafts and other subjects will also be taught, and for these there is abundant provision. The art school consists of a suite of three fine rooms. Special attention is to be given to the teaching of design. The corridors, passages and floors will be laid with pitch-pine blocks, and the entrance halls with ceramic mosaic. The Mayor (Mr. Gossage) was to have taken the chair, but he was prevented by illness from being present. Captain H. G. Leigh, who was to have laid the foundation stone, was also unable to be present through illness in his family. The Mayor's place was taken by his son, Mr. Councillor Gossage, and that of Captain Leigh by Mr. T. S. Timmis, late chairman of the School Board. Most of the members of the Corporation were present, and also the Mayors of Warrington, Bootle, and Wigan.—Mr. H. Wade Deacon (chairman of the Technical Instruction Committee), in asking Mr. Timmis to lay the stone, said that science and art classes were first formed in Widnes twenty years ago. The classes grew rapidly, and from time to time they

had to remove to larger premises. The Corporation by and by took the classes in hand, and they were now so flourishing that better accommodation was urgently needed. Their work had been greatly aided by the grant of £480. a year from the Lancashire County Council, and he was glad to say that the Council had promised between £300. and £400. towards the furnishing of the new building. There would be ample accommodation for teaching chemistry and other subjects, and he hoped the public would see to it that the schools were used in the daytime as well as at night.

ANSWERS TO CORRESPONDENTS.

A.F.—We have done so with pleasure.

J. M. T.—Thanks for information.

E. G. D.—By post.

THREE COCKS.—The causes you suggest are feasible, the tannate idea being least so. To summarise its presence is always due to the decomposition of organic matter of either vegetable or animal origin. Ordinary distilled water almost always contains it. After redistillation it is frequently present, while water absolutely free is very hard indeed to procure. An analysis will generally reveal the nature of the pollution, in conjunction with the known history of the water.

B.B.—Fourpence, post free, single copies.

H. N.—Consult your back numbers with the assistance of the index. We can remember one on page 367, vol. xiv.

AN IMPORTANT PATENT DYE CASE.

IN the Chancery Division, recently, before Mr. Justice Chitty, in the matter of Leonhardt and Co. v. Kalle and Co. and J. Rutter and Co., a motion was made on behalf of the plaintiffs for an injunction to restrain the defendants from infringing a patent granted to the plaintiffs in 1888 in connection with the manufacture of certain chemical dyes. The plaintiffs are manufacturing chemists in Manchester. Sir Richard Webster, Q.C., for the plaintiffs, read a number of affidavits from chemical experts to show that the defendants used the same process as that which the plaintiffs had patented. Counsel said that the plaintiffs had worked the patent very largely. Mr. Aston, Q.C., who appeared for the defendants, said they denied infringement and also the validity of the patent.

His lordship ordered that the motion should stand for trial.

The defendants, Kalle and Co., who are manufacturing chemists in Germany, were not represented, Sir Richard Webster remarking that service had not yet been effected upon them.

AN INSANITARY CHURCH.—Apropos of the proposal made not long since of instituting a "Sanitary Sunday" for the special inculcation of hygienic principles, it is interesting to note that the Rev. Philip Hains, vicar of St. George's Church, Wigan, has issued a notice that unless the sanitary arrangements in the vicinity of the church are improved he will have to close it during the summer. The reverend gentleman complains that when he went down to the church the other day he could not enter owing to the obnoxious exhalations. He further states that he does not wish the congregation to attend, when every hour they are breathing miasma or something productive of typhoid or some other fever; adding that the application he made to the Wigan bench has been futile, and only likely to continue whilst Wigan is without the assistance of a stipendiary magistrate. The miasma, he states, arises from different works, which, together with keeping dogs and pigeons, make a noxious combination of smells. A medical gentleman had certified that the nuisance was injurious to human life, and unless something is done effectively, he will feel compelled to close the church during the hot weather.

SOUTHAMPTON DOES NOT WANT PETROLEUM.—An important question arose at Southampton Harbour Board, on Tuesday, as to the berthing and unloading of petroleum ships. A firm of merchants had asked the Board to fix a spot near the entrance to the Itchen at which they could discharge petroleum into tank barges to convey to Northam wharves. The committee recommended the Board not to allow a site in Southampton waters for such purposes. On behalf of the committee it was contended that there would be a danger of a quantity of the oil getting into Southampton waters and coaling vessels using the port, thus rendering them exceedingly likely to catch fire. On the other hand, it was argued that the stopping of such a traffic would be greatly prejudicial to the trade of the port, and it was resolved to refer the matter back to the General Purposes Committee for a further report. Raising the flash point to a reasonable degree of safety would get over the difficulty. But that is not the way of the Government. After unravelling the safety-lamp knot, the next thing will be to devise patent safety vessels, and safety docks, for the special benefit of a dangerous, but by no means irremediable, oil.

Trade Notes.

THE UNITED ASBESTOS COMPANY, LIMITED.—We learn that the Lords of the Admiralty have for the tenth time awarded the contract for the supply of Victor metallic joints and other asbestos goods to this company. These joints are excellent for manhole and mudhole doors, and steam joints of every description. By using them manhole and mudhole doors may be removed an almost unlimited number of times without new jointing material being required.

JAVA INDIGO.—Messrs. Bunge and Co., of Rotterdam, report that during the past two months the market, particularly for the good and fine middling classes and the fine qualities, was very firm, and a regular business was done. Notwithstanding the demand for Bengal having been small, and the last London sale having again gone off quietly, the demand for Java Indigo continues. The quantity of the crop of this year does not come up to the expectations; recent news from Java confirms the belief that the quantity will not exceed 50 to 70 per cent. of a normal crop.

THE INSTITUTE OF CHEMISTRY EXAMINATION.—At the examination in Practical Chemistry for admission to the Membership of this Institute held at the Laboratories at 30, Bloomsbury-square, from July 2nd to 5th, 27 candidates presented themselves, of whom the following seventeen were successful:—A. Adams (trained at Mason College, Birmingham), H. Bowes (assistant to W. Thomson, F.I.C.), B. S. Bull (Christ Church University, New Zealand), O. F. C. Block (Finsbury Technical College and student under J. Hodgkin, F.I.C.), W. C. Carter (Finsbury Technical College), W. Crossley (Royal College of Science, Dublin), W. R. Hardwick and J. Harger (University College, Liverpool), J. A. Hatfield (Mason College, Birmingham), G. H. Perry (Royal College of Science, London), W. Ralston (Glasgow and West of Scotland Technical College), A. Ross and H. C. Seabrooke (Finsbury Technical College), T. C. Sharrott (Mason College, Birmingham, and Royal College of Science, London), E. A. Warmington (Mason College, Birmingham and Leipzig University), and J. T. Whitton (Glasgow and West of Scotland Technical College). The examiners were Professor Wyndham, R. Dunstan, M.A., F.R.S., F.I.C., and Mr. Thomas Fairley, F.R.S.E., F.I.C.

THE PRODUCTS OF SHALE DISTILLATION.—The members of the Society of Chemical Industry, who visited the works of the Broxburn Oil Co., Ltd., last week, were able to inspect a show case containing the following products made from Broxburn Shale:—

Crude oil.	
Sulphate of ammonia.	
Coke from crude oil stills.	
Naphtha, '725, '730, '740, sp. gr.	
Burning or lamp oils:—	
Petrolene, ... sp. gr.	'800, flash 110 to 120 degs. F.
No. 1 paraffin oil, "	'806, " 120 "
Lighthouse oil, "	'810, " 160 "
Marine sperm, "	'830, " 230 "
Mineral Colza, "	'840, " 250 "
Gas oil, "	'840-'850, " 200 "
Lubricating oil, "	'865, " 300 "
" " "	'875, " 320 "
" " "	'885, " 340 "
" " "	'895, " 340 "
" bloomless, "	'890, " 350 "
Crude paraffin.	
Semi-refined paraffin.	
" match paraffin.	
Refined paraffin wax.	
Candles—various, white and coloured.	
Night lights.	

The foregoing gives a convenient *résumé* of the shale distilling industry.

WATER ANALYSIS A LA PHARMACIST.—Dr. Kubler seriously gives the following "process" for determining the purity of potable waters. Take two tubes of certain dimensions, and fill one with distilled water and the other with the sample to the same height. Hold them over a piece of white paper, and observe if the sample is clear and colourless. Then fill two test tubes half full of the water, and into one pour a few drops of Nessler's reagent; into the other, a few drops of solution of iodide of potassium, dilute sulphuric acid, and starch water. A yellow colour in the former will indicate ammonia, and a blue colour in the latter will show the presence of nitrites. "These operations are," says the doctor, "very simple, very inexpensive, and very conclusive." They certainly are "very simple and very inexpensive," but no man in his senses would attempt to draw conclusions from them; inferences perhaps, but not conclusions. Dr. Kubler had better leave water analysis alone, and turn to something "less simple and inexpensive."—*British and Colonial Druggist*.

ALIQUANDO BONUS DORMITAT HOMERUS.—Not only Homer, but almost everyone is more or less liable to be caught napping. Our worthy contemporary, the *Chemist and Druggist*, must however have been nodding muchly to make the following lapse when discussing last week in Editorial Comments the flash-point of burning oils question:—"The Home Secretary has now proposed an investigation, and if a Committee is formed there will be no doubt that all the evidence will point to a move in the desired direction." Such is the statement. But it is not "now" that an inquiry has been proposed. That was done last February. "If a Committee is formed" hardly conveys a true impression of the present position of affairs, as the Committee first sat a fortnight ago. The easy-going assumption that all will go well, as implied by the last few words we quote, is, alas, the saddest part of all. There is much fear and apprehension that the evidence in favour of moving in the "desired direction" will not be as full as it might, by reason of the evidence of the would-be reformers of safety lamps being unnecessarily lengthy. So that too much can hardly be done to arouse those who are willing to support the 100° flash-point from their apparent state of apathy.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of
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On usual trade terms.

Paternoster Row, E.C.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzol inclines to lower prices, with 90's at 11½d., and 50/90's 1s. to 1s. 0½d. Carbolic acid (crude 60%) is unaltered, but crystals (40%) are a shade easier at 6d. Crude naphtha is much the same as last week, while solvent is now quoted 1s. 4d. Pitch is strong at good prices, which range from 32s. 6d. to 33s. 6d., f.o.b. East Coast.

Sulphate of ammonia is steady at the easier prices ruling. Nearly all the business doing seems to lie in the hands of dealers. Hence prices are being depressed as much as possible. Were it not for the compulsory purchases of speculators to meet their immediate requirements in conjunction with the greatly curtailed production, a marked decline in prices might have been experienced. Quotations are:—Beckton £13. 16s. 3d., London outside makes £13. 16s. 3d., Liverpool £13. 15s., Hull £13. 15s., Leith £13. 15s. to £13. 13s. 9d.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 41s. 10d., Middlesbrough 35s. 4½d. cash, and hematite 43s. 6½d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s, closed at £38. to £38. 5s. cash, and £38. 8s. 9d. to £38. 13s. 9d. three months. Tin, quiet: Straits closed at £66. 5s. to £66. 15s. cash, and £66. 15s. to £67. 5s. three months; Australian, £66. 15s.; English ingots, £69. 10s. to £70. Lead, steady: Spanish, £9. 7s. 6d. to £9. 8s. 9d.; English, £9. 10s. to £9. 12s. 6d. Silesian Spelter, ordinary, £15. 18s. 9d. Nickel, 1s. 7½d. Antimony, £32. Quicksilver: first hands, £6.; second hands, £5. 19s. Copper sharer, quiet: Cape, 1½ to 1½; Copiapo, 1½ to 1½; Libiola, 2½ to 3½; Mason and Barry, 2½ to 2½; Rio Tinto, 12½ to 12½; Tharsis, 4½ to 4½.

GLASGOW, WEDNESDAY.—Market steady, with moderate business. Scotch done at 41s. 10½d. cash; closing with buyers at 41s. 10d. cash, sellers ask ½d. more. Cleveland closes with buyers at 35s. 4½d. cash, sellers ask 35s. 5½d. Cumberland hematite closes with buyers at 43s. 6½d. cash, sellers ask 43s. 7½d. Middlesbrough hematite closes with buyers at 42s. 8½d. cash, sellers ask 42s. 9½d.

WOLVERHAMPTON, WEDNESDAY.—The settlement in the coal trade arrived at since last week assisted trade to-day. Ironmasters believe that the previous hesitancy to give out contracts will now largely disappear. The market to-day, therefore, had an expectant attitude, and there was a disposition to strengthen prices. Black sheets, £6. 10s.; galvanised ditto, £9. 12s. 6d.; plates, £7. to £7. 10s.; and nail rods, £6. 15s. to £7. Northampton pigs, 40s.; Derbyshires, 41s. to 42s.; Lincolns, 42s. to 43s. nett. Steel active; prices slightly improved. Coal tame.

MISCELLANEOUS CHEMICAL MARKET.

There has been more activity in the market during the past week, but things generally remain somewhat depressed. In alkali prices have a tendency to weakness. Bleaching powder is still quoted at £7. 10s. on rails, and £8. 10s. b. Caustic soda is in better request, and sales are more satisfactory: prices remain unchanged. Soda crystals flat at 42s. 6d. bags, and 47s. 6d. casks, rails. Saltcake still offering in abundance. Chlorate of potash and soda quiet, and prices have a downward tendency. Nitrate of soda in limited demand at prices varying from £8. 12s. 6d. to £8. 17s. 6d., according to quality. Sulphate of copper can be had at £14. 15s. per ton, f.o.b. Ammonia salts continue in moderate request: grey is quoted £22. 10s., and white £26. Carbonate $3\frac{1}{2}$ d. Sal ammoniac 37s. and 39s. Bichromates of soda and potash move slowly at convention prices. Oxalic acid steady at $3\frac{1}{2}$ d. per lb. Acetates of lime are firmer. White powdered arsenic in but little demand, price is £14., Garston. Yellow prussiate of potash strong, and sells freely, price unchanged. Caustic and carbonate of potash find a ready market, and prices are: caustic (75/80%) £20, carbonate (90/95%) £17. Carbolic acid sells but slowly, and prices generally are a shade weaker.

REPORT ON MANURE MATERIAL.

Throughout the week business has been quiet, both on spot and for forward delivery, and prices have rather favoured buyers. The demand for mineral phosphates for the Continent continues, but United Kingdom buyers seem to have pretty fully covered their next season's requirements. Values of 75/80% Florida rock are $8\frac{1}{2}$ d. per unit, c.i.f. to the Baltic, and 8d. c.i.f. to the Continent, and about $7\frac{1}{2}$ d. to good United Kingdom ports. There are sellers of South Carolina River rock at $6\frac{1}{2}$ d. per unit, and a fraction less might possibly be business for large lines and shipment well ahead. The value of Peace River is about $6\frac{1}{2}$ d. per unit. There are buyers of handy cargoes of River Plate bones at £4. 12s. 6d., delivered good United Kingdom ports. For large cargoes £4. 12s. 6d. would be taken, but this is rather above buyers' ideas of value. For autumn shipment there are sellers of Bombay bone meal at £4. 15s. per ton. Common grinding bones are in demand at £4. 5s. to £4. 7s. 6d. per ton, ex quay Liverpool, and £4. 10s. paid for a parcel suitable for charring. Nitrate of soda is steady, both in spot and in the forward position: on spot there are sellers of ordinary quality at 8s. $10\frac{1}{2}$ d. per cwt., and of refined at 9s. per cwt. Due and near at hand cargoes are worth 8s. 9d. to 8s. $10\frac{1}{2}$ d. per cwt., according to size and test, and later shipments 8s. $10\frac{1}{2}$ d. to 9s. 3d. per cwt. There is nothing fresh to report in miscellaneous material.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has been steady with a good business passing, with Accra at £19. 10s.; Lagos to arrive, £20. 15s. per ton. Olive being scarce is now steady at £28. 10s. to £36. per tun. Linseed is slow of sale, but Liverpool makes in export casks remain at 21s. 6d. to 22s. 6d. per cwt. Cottonseed is dull, with alteration in values which range from 20s. 6d. to 21s. per cwt. for Liverpool refined. Castor oil is steady: good seconds Calcutta is selling at quay for $2\frac{1}{2}$ d., and ex store at $2\frac{3}{4}$ d. First pressure French is still quoted $2\frac{1}{2}$ d. to $2\frac{3}{4}$ d. per lb. Tallow keeps quietly steady without alteration in prices. Rosin is steady at 3s. 9d. for common, and mediums are in fairly good request. Fine is inclined to be easier. Spirits of turpentine are enjoying a fairly good inquiry at 22s. 6d. to 22s. 9d. per cwt. Petroleum prices are quite nominal there being virtually no business doing in either Russian or American oils.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is a rather better inquiry for bleach at £7. 5s. per ton. Soda ash is scarce, and likely to advance in price. Sulphur in demand, and price now quoted is £4. per ton. Other products remain unaltered.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett; soda ash, 48%, £3. 12s. 6d. per ton, nett; do., 52%, £3. 16s. 3d. per ton, nett; do., 56%, £4. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, $7\frac{1}{2}$ d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt in fair demand at 10s. 6d. per ton, f.o.b. Tees.

COALS generally are quiet, though there is an increased demand from Scotland. The majority of collieries continue to be well employed. Best Northumbrian steam steady at 11s. per ton; seconds ditto, 9s. 6d. and 10s. per ton; small steam, 5s. per ton; bunker coals in fair demand at 7s. 3d. per ton; gas coals, 7s. 3d. and 7s. 9d. per ton; coke firm at 13s. 6d. and 14s. 6d. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The following is a return of the tonnage upon which dock dues have been paid to the North-Eastern Company's docks in Hull from the 1st of January to 21st July, 1894: 1,280,720 tons, against the same time in 1893 of 1,094,850 tons. The principal imports into Hull up to date have been:—Linseed, 257,562 qrs., against 162,182 qrs. a year ago; rapeseed, 66,436 qrs. against 25,485 qrs.; cottonseed, 121,645 tons against 108,008 tons; olive oil, 13,280 casks against 6,063 casks; rape oil, 4,584 casks against 3,949 casks; tallow, 13,191 cwt. against 17,801 cwt.; bones, 4,378 tons against 3,376 tons; oil cakes, 9,776 tons against 12,041 tons; turpentine, 12,839 barrels against 8,741 barrels. There are very few changes in the oil market with the exception of refined cotton oil, which has been in fair request, and closes steady at 18s. 3d. naked spot, or August-October; November-April, 17s. $4\frac{1}{2}$ d. to 17s. 6d.; crude, on the spot, 16s. 3d. to 16s. $4\frac{1}{2}$ d. naked. Export for the week, 1,740 cwt. Linseed oil has remained dull, and closes with sellers at 19s. $7\frac{1}{2}$ d. naked spot July-August, 19s. 6d. sellers; September-December, 18s. 6d.; and January-April, 18s. $4\frac{1}{2}$ d. Boiled and refined from £1. to £2. per ton extra; casks 17s. 6d. and ordinary barrels from 22s. 6d. per ton extra. Export for the week, 2,020 cwt. Rape oil remains flat, and not much in request. Olive oil from £31. per tun. Castor oil, for first pressure, from $2\frac{1}{2}$ d. per lb. Cod oil, very quiet, from £17. to £20. per ton. Sod oil quiet; prices unchanged. Spirits of turpentine, 22s. 3d. per cwt. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes remain steady, with a good consumption for the time of year of the best kinds, but secondary sorts unusually dull. 95% pure, £6. 10s.; Russians, £6. 10s.; oil cakes, £5. 10s. Cotton cakes, a somewhat steadier tone: Best makes, £4. per ton; seconds, £3. 15s. Rape and feeding cakes unchanged.

PAINTS.—The change in the weather has somewhat affected the disposition of buyers, but on the whole makers continue busy. Prices are: Oxide of iron dry, from £7. to £18. per ton. Oxide of zinc paint from £22. Venetian red dry, from £4. per ton. Blue black, £4. 5s. Mineral black, £4. per ton. White and red leads unchanged. Yellow ochre, dry, from £3. 15s. Common black varnish £5. 10s. per ton. Oak varnish, from 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

It is only now that the works of this quarter are getting back into normal action, after the holidays. With the exception of bleaching powder, soda ash, and deodorisers generally, for which there is rather more of inquiry owing to the hot weather and the prevalence of epidemics at home and on the Continent, the market remains inactive as before the stoppage. Soda crystals are a fraction cheaper; also chlorate of potash. The only chemicals really scarce and at all markedly inquired after are soda ash and sulphur.

Sulphate of ammonia seems gradually losing part of its vigour, though production has been very considerably curtailed owing to the season, and the stoppage of so many of the blast furnaces, pending a

settlement of the Scotch mining strike. Prompt business has been done down at £13. 15s. There is nothing being carried through for forward. Nitrate of soda also is dropping.

Scotch mineral oil prices for another year fall to be fixed in a week or two. It is expected that there will be a further drop of one farthing a gallon. All paraffins, both liquid and solid, are still very quiet.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £22. 10s., and boracic acid, £32. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chloride of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 8s. 10½d.; sulphate of ammonia, £13. 15s. to £13. 17s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 10s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1½d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 5d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 52,877 bags, and 32,181 mats.

New Companies.

Elastic Enamel Paint Co., Ltd.—CAPITAL £2,000. in shares of £1. each. This company has been formed to acquire a patent relating to a wood and metal preserving paint, and to trade as manufacturers of, and dealers in, paints, colours, varnishes, etc.

Hardwick's "Purine" Syndicate, Ltd.—CAPITAL £1,000. in shares of £1. This company has been formed to carry on the business of chemical manufacturers.

The Shropshire Oil and Soap Works, Ltd.—CAPITAL £15,000., in 15,000 £1 shares. of which 13,000 are preference, and 2,000 ordinary shares. This company has been formed to enter into an agreement with H. C. Powell to acquire premises at Sturchley, near Shifnal, Shropshire, and to carry on the trades indicated in the title of the company.

Patent Enamel Co., Ltd.—CAPITAL £60,000. in 10,000 ordinary shares of £2. 10s., and 5,000 preference shares of £7. This company has been formed to acquire the business of the Patent Enamel Co., Ltd., now in liquidation, and to carry on the business of enamellers of plate and hollow ware. The subscribers to the memorandum of association are:—A. F. Godson, 2, Pump-court, E.C., barrister; H. W. Elliott, Elmfield, Selby Oak, Worcestershire, manufacturer; G. E. Wright, Solihull, Warwickshire, manufacturer; W. Walters, The Langleys, Selby Oak, manufacturer; W. G. Ashford, 12, Lower Essex-street, Birmingham, manufacturer; W. H. Wymms, Westholme Selby Oak, manufacturer; C. H. L. Ashford, Stephen Green, Northfield, manufacturer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Atmospheric Gas Burners. G. E. Wright. 13,743. July 9.
Improvements in Explosives. T. Hawkins, S. H. Hawkins, and H. Hawkins. 13,746. July 9.
Manufacture of Yellow Prussiates from Rhodanalkalies. O. Imray. 13,760. July 9.
Manufacture of Ammonia. W. M. Macey and J. F. Hutcheson. 13,315. July 10.
Improvements in Electrolysis and Apparatus Therefor. H. H. Lake. 13,358. July 10.
Electrolytically Treating Molten Salts. P. Jensen. 13,377. July 10.
Barking Logs for Wood Pulp Manufacture. T. Thornley. 13,462. July 12.
Process and Apparatus for the Electrolytical Decomposition of Alkaline Salts. A. Sinding-Larsen. 13,499. July 12.
Improvements in the Manufacture of Explosives. H. H. Lake. 13,506. July 12.

Gazette Notices.

PARTNERSHIP DISSOLVED.

C. HERVEY AND J. WELCH, manufacturing chemists and drysalers, Salford and Manchester, under the style of Hervey, Peek and Hervey.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

BIRCH. GEORGE WILLIAM (trading as Huskisson and Co.), Birmingham, oil colour and varnish manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 14th.

Acetate of Lime—
U. States, 194 pkgs. Lister & Biggs
Alkali—
Germany, 1 pkge. L. & I. D. Jt. Co.
Alum—
Holland, 3 pkgs. J. Owen
U. States, 34 H. Wallace & Co.
50 G. Ward & Sons
Aluminium—
Sweden, 1 t. Major & Field
Aniline—
France, 1 pkge. A. Henry & Co.
Anthracene—
Spain, 174 pkgs. Burt, Boulton & Co.
Antimony—
Japan, 2½ t. G. D. Jennings & Co.
N. Zealand, 3 James & Shakespeare
Antimony Ore—
E. Indies, 68 t. Pillow, Jones & Co.
Asbestos—
France, 238 Mory & Co.
Canada, 930 G. Ward & Sons
3,000 Beck & Pollitzer
Holland, 27 Philipps & Graves
Barytes—
Germany, 23 cks. Tough & Henderson
Belgium, 43 Hemingway & Co.
56 W. Harrison & Co.

Belgium, 20 A. Zumbek & Co.
52 Burrell & Co.
21 J. L. Lyon & Co.
Binitro Toluol—
Holland, 11 pkgs. J. Owen
Boracic Acid—
Italy, 6 pkgs. City Coml. Wf, Ld.
Caoutchouc—
Zanzibar, 66 c. H. Kiver & Co.
11 Anderson, Weber & Smith
12 Patry & Pasteur
6 Clarke & Smith
Majunga, 77 Lewis & Peat
Madagascar, 118 c. Procter Bros.
54 Hammond & Co.
Mauritius, 1
France, 5 H. Johnson & Sons
E. Indies, 58 E. Boustead & Co.
U. States, 2 T. Meadows & Co.
Carbonic Acid Gas—
Holland, 100 tubes. F. J. Putz & Co.
189 J. Barber & Co.
Castor Oil—
France, 21 brls. 30 cks. Beresford & Co.
31 Lucas & Spencer's Wf, Ld.
E. Indies, 10 cs. W. Balchin
100 Anderson, Weber & Smith
Italy, 20 Stebbing & Co.
10 Fuerst Bros.

Caustic Potash—
France, 17 drs. Carey & Sons
Belgium, 150 c. Petri Bros.
Cellulose—
Germany, 100 pkgs. T. H. Lee
Chemicals (otherwise undescribed)
Germany, 4 pkgs. L. & I. D. Jt. Co.
42 T. H. Lee
61 A. & M. Zimmermann
1 Bentner & Co.
2 Schenker & Co.
3 Domeier & Co.
1 Philipps & Graves
Holland, 1 G. Gionta
Italy, 65
Copperas—
U. States, 2 pkgs. G. Ward & Sons
Cream of Tartar—
France, 15 pkgs. W. C. Bacon & Co.
F. C. Devon & Co.
Spain, 2 W. C. Bacon & Co.
3 Evans, Lescher & Co.
Dextrine—
France, 100 pkgs. Hernu, Peron & Co.
Dye-stuffs—
Annatto
Denmark, 12 pkgs. R. J. Fullwood
Argols
Italy, 352 pkgs. B. Jacob & Sons
79 Thames S. T. & L. Co., Ld.
Cochineal
Canaries, 45 pkgs. Hammond & Co.

Extracts
Belgium, 100 pkgs. T. H. Lee
25 W. C. Barnes & Co.
Denmark, 6 Perkins & Homer
13 Sorensen & Co.
8 cks. R. J. Fullwood & Co.
5 pkgs. Bailey & Leatham
U. States, 100 Skillbeck Bros.
France, 200 Hepburn & Co.
48 drs. Carey & Sons
Fastic
Hayti, 58 t. Churchill & Son
Gambier
E. Indies, 226 pkgs. Beresford & Co.
137 R. & J. Henderson
240 Perkins & Homer
47 L. & I. D. Jt. Co.
Indigo
Germany, 2 cks. H. Lambert
E. Indies, 13 cts. Stansbury & Co.
Myrabolams
E. Indies, 2,693 pkgs. L. & I. D. Jt. Co.
2,607 Baxter & Hoare
1,359 J. Graves
Orchella
Ecuador, 87 pkgs. Lewis & Peat
Shumac
Italy, 500 pkgs. Beresford & Co.
28 Finlay & Co.
50 G. Venyon
Turmeric
E. Indies, 200 pkgs. S. Figgis & Co.
443 L. & I. D. Jt. Co.
Valonia
A. Turkey, 15 t. H. Lorenz
51 Adam Bros.

Dyestuffs (otherwise undescribed)
Cyprus, 391 pkgs. Dunlop Bros. & Co.

Farina—
Germany, 30 pkgs. Dutrulle, Soloinons, & Co.
Holland, 50 H. Lorenz

Glucose—
Germany, 8 pkgs 65 c. J. Knill & Co.
" 200 200 c. Hicks, Nash, & Co.

" 15 136 F. Fink & Co.
Holland, 50 50 Prop. Sun Wf.
France, 300 300 Fenning's Wf.
" 300 300 L. Norman & Co. Ltd.

U. States, 999 999 Fellows, Morton & Co.
" 500 500 G. Hedges & Son

" 397 2,185 T. M. Duche & Sons
" 2,000 2,000 W. H. Cole & Co.

" 50 300 Deering & Robottom

Infusorial Earth—
Germany, 435 W. Byford
" 40 Beck & Pollitzer

Iron Oxide—
Austria, 13 cks. Magee, Taylor, & Co.

Holland, 42 t. W. Hawkins & Co.

Manure—
Melbourne, 17 t. Low, Sons, & Bedford
Gibraltar, 20 T. Clark
Germany, 15 W. G. Blagden
France, 40 Mead, Son, & Co.
Canary Is., 5 L. & I. D. Jt. Co.
Holland, 12 H. & E. Albert

Methyl Alcohol—
Germany, 8 dms. Stein Bros.
U. States, 60 brls. Elkan & Co.

Mica—
E. Indies, 455 W. M. Smith & Sons

Ochre—
France, 278 brls. W. Harrison & Co.
Holland, 1 ck. 6 pkgs. Philipps & Graves
U. States, 50 brls. Magee, Taylor, & Co.

Paraffin Wax—
U. States, 450 brls. Anglo-American Oil Co.
" 250 H. Hill & Sons

Phosphate Rock—
France, 236 t. Anglo-Contl. G. Wks.
U. States, 2,300
Belgium, 27 B. Jacob & Sons

Plumbago—
Germany, 42 cks. 2 cs. B. Gallaway

Potash—
Canada, 137 c. Charles & Fox
France, 100 Petri Bros.

Potassium Bicarbonate—
Belgium, 50 c. A. & M. Zimmermann

Potassium Carbonate—
France, 177 c. J. A. Reid
Germany, 200 Fellows, Morton, & Co.
" 1 ck. L. & I. D. Jt. Co.

Potassium Cyanide—
Holland, 45 pkgs. F. Boehm
Germany, 10 Petri Bros.

Potassium Oxymuriate—
Belgium, 10 pkgs. Arnati & Harrison

Potassium Sulphate—
France, 14 pkgs. Mead, Son, & Co.

Pumice Stone—
Italy, 3 t. 16 c. G. W. Largen

Pyridine—
Holland, 8 pkgs. Burt, Boulton, & Co.

Pyrites—
Spain, 300 t. Anderson, Anderson, & Co.
Pomaron, 990 Mason & Barry, Ltd.

Rosin—
France, 10 brls. Lucas & Spencer's Wf., Ltd.

Salammoniac—
Holland, 4 pkgs. Kaltenbach & Schmitz

Saltpetre—
Germany, 40 cks. J. Hall & Son
" 70 T. Merry & Son
" 2 Brown & Elmslie
E. Indies, 884 bgs. Lucas & Spencer's Wf.
" 616 C. Wimble & Co.
" 170 L. & I. D. Jt. Co.

Starch—
Belgium, 80 pkgs. T. H. Lee
" 278 F. Rosenthal & Co.
" 200 H. Johnson & Sons
" 180 Leach & Co.
" 426 Prep. Scott's Wf.
Holland, 15 Union L. Co., Ltd.
" 20 Suffolk & Co.
" 30 J. Barber & Co.
" 165 Philipps & Graves
" 1,306 Little & Johnston
" 40 Pillman & Philipps
" 560 A. Starck
Belgium, 40 J. Barber & Co.
" 80 Fardell & Co.
Germany, 808 L. Sutro & Co.

Stearine—
Melbourne, 220 cks. Ross & Deering
France, 100 bgs. Beresford & Walbaum & Tosetti

Sulphates—
Belgium, 260 pkgs. Sawyer, Sons, & Co.

Sulphur—
Italy, 2 t. A. Laming & Co.
" 20 J. Kitchin, Ltd.
" 5 F. Smith
" 100 Johnson & Hooper
" 15 E. W. Carling & Co.
" 21 Co-op. Lightge. Association
" 10 C. Vincent
" 20 G. Boor & Co.
" 8 Grimwade, Ridley, & Co.

Tartaric Acid—
Holland, 13 pkgs. F. C. Devon & Co.
" 16 Kirkpatrick & Co.
Germany, 22 F. Boehm

Turpentine—
Savannah, 2,469 brls. Prod. Brokers Co., Ltd.

Ultramarine—
Germany, 32 cks. T. Hamilton
" 1 Haefner, Hilpert, & Co.
Belgium, 6 Leach & Co.
Holland, 4 brls. W. Harrison & Co.
" 4 cks. Spies Bros. & Co.
" 6 cs. Haefner, Hilpert, & Co.

Varnish—
France, 15 pkgs. J. Burnett & Sons
" 15 Suter, Hartmann, & Co.
U. States, 20 Beck & Pollitzer
" 108 Pinchin, Johnson, & Co.
Germany, 11 L. & I. Dk. Co.
Belgium, 6 Stobbs, Wilson, & Co.

White Lead—
Germany, 42 cks. M. Ashby, Ltd.
" 39 Randall Bros.
" 19 N. J. Fenner & Co.
" 11 Petri Bros.
Holland, 38 Spies Bros. & Co.
Austria, 6 cs. Magee, Taylor & Co.

Wood Pulp—
Canada, 1,650 pkgs. E. J. & W. Goldsmith
Austria, 500
Norway, 300 Tough & Henderson
" 406 W. G. Taylor & Co.
" 100 M. Dk. Co.
N. Russia, 167 Thames S. T. & L. Co.
Sweden, 4,396 Henderson, Craig & Co.

Zinc Oxide—
Germany, 35 cks. J. Matton
Holland, 500 Soundy & Sons
" 65 brls. M. Ashby, Ltd.
U. States, 100

LIVERPOOL.
Week ending July 14th.

Antimony—
Valparaiso, 123 bgs. Aillon, Aramayo & Co.

Antimony Ore—
Antofagasta, 229 sks. Kleinwort, Sons & Co.

Barytes—
Antwerp, 100 bgs.
Rotterdam, 12 cks.

Borate of Lime—
Valparaiso, 432 sks.

Caoutchouc—
Hamburg, 14 brls.

Castor Oil—
Leghorn, 10 cs.
Coconada, 150 cks.
Marseilles, 6 J. J. Mack & Son

Chemicals (otherwise undescribed)
Hamburg, 8 cks. 2 cs.

Colours—
Hamburg, 8 cks. 15 cs.

Cream of Tartar—
Barcelona, 10 hds. 5 cks.

Dyestuffs—
Algarobilla
Coquimbo, 73 sks. Schintz & Co.
Argols
Patras, 12 cs.

Divi Divi
Hamburg, 246 bgs.

Extracts
Colon, 86 cs. Benitz, Novella & Co.

Indigo
Bordeaux, 50 cks.
Marseilles, 10

Logwood
Boston, 50 bds.

Myrobolams
Bombay, 6,556 bgs.

Orchella
Lishon, 27 bls.

Sumac
Palermo, 100 bgs. J. Kitchin, Ltd.

Valonia
Rettimo, 127 bgs. C. Nicolaides
" 121 Zervudaki Bros.

Glucose—
New York, 84 brls. T. M. Duche & Sons

Iodine—
Valparaiso, 61 brls. W. & J. Lockett
" 44 A. Gibbs & Sons

Limestone—
Antwerp, 1 cs.

Manganese Ore—
Valparaiso, 201 t. Duncan, Fox & Co.
Bordeaux, 4 bgs.

Mica—
Quebec, 2 brls. 2 cs. H. Baumgarten

Ochre—
Marseilles, 8 cks.

Paint—
Boston, 20 cs.
Alexandria, 7 dms.

Paraffin Scale—
New York, 450 brls. Standard Oil Co.

Phosphate—
Bona, 700 t.
Terneuzen, 380
Montreal, 508 Phosphate Lime Co., Ltd.

Phosphate Rock—
Port Royal, 3,250 t.

Pitch—
Amsterdam, 1 ck.

Plumbago—
Genoa, 23 brls. G. G. Blackwell & Sons

Potashes—
Dunkirk, 2 cks.
Montreal, 25 brls.

Potassium Carbonate—
Hamburg, 48 cks.

Pumice Stone—
Leghorn, 5 brls.

Pyrites—
Huelva, 4,593 t. Matheson & Co.

Quicksilver—
Rotterdam, qty.

Rosin—
New York, 382 brls. T. W. Blossom
" 900
Brunswick, Ga., 4,764 brls.

Soap—
Marseilles, 26 cs. 135 bxs.
Genoa, 1,000 300 Pacific S. Nav. Co.

Leghorn, 79
Naples, 141 Paul Behrends
Boston, 1 W. Foggett
Marseilles, 1 Thompson, Tedcastle

Soapstone—
Bordeaux, 1,000 bgs. G. G. Blackwell

Sodium Nitrate—
Pisagua, 5,341 bgs.

Starch—
Antwerp, 40 cs. J. T. Fletcher & Co.

" 1 bg.
Rotterdam, 90 cs. Brown, Geveke & Co.

" 40

Stearine—
New York, 38 hds.
Antwerp, 13 kgs.

Sulphur—
Marseilles, 10 bls.
Genoa, 900 bgs. Pacific S. Nav. Co.

Tallow—
Catania, 310 21 brls.
New York, 50 hds. Co-op. W'sale Society, Ltd.

" 100 100 tcs.
Boston, 10 175
Philadelphia, 465
B. Ayres, 90 pps. 20 406 hf.-pps.

Tartar—
Naples, 7 cks.
Bordeaux, 14

Tartaric Acid—
Rotterdam, 2 cs.
Marseilles, 7 cks.

Ultramarine—
Bremen, 4 cks.

Varnish—
Hamburg, 1 cs.
New York, 10 Larrinaga & Co.
Rouen, 37 pkgs. R. J. Francis & Co.

Verdigris—
Marseilles, 10 cks.

Waste Salt—
Hamburg, 2,016 bgs.

White Lead—
Rotterdam, 13 cks.
Antwerp, 10

Wood Pulp—
Oporto, 500 bls. Cima Wood Pulp Co.
Montreal, 22,655 bds. A. Rice & Co.

Zinc Ashes—
Marseilles, 13 cks.

Zinc Oxide—
Rotterdam, 50 cks.
Marseilles, 88 brls.
Antwerp, 3 J. T. Fletcher & Co.

Zinc Skimmings—
Boston, 327 bgs.

MANCHESTER.
Week ending July 14th.

Acetic Acid—
Rotterdam, 17 cbys.

Bone Ash—
Rio Grande do Sul, 380 t.

Chemicals (otherwise undescribed)
Hamburg, 1 cs.

Chrome Alum—
Rotterdam, 30 cks.

Chromium Acetate—
Rotterdam, 10 cks.

Colours—
Rotterdam, 247 cks. 42 cs. 1 bx. 23 brls.
Treport, 7 2
Antwerp, 7

Cream of Tartar—
Rotterdam, 12 cks.

Dyestuffs—
Alizarine
Rotterdam, 20 bxs. 2 cs.
Extracts
Rotterdam, 4 cks.

Farina—	
Stettin,	100 bgs.
Hamburg,	200.
Litharge—	
Rotterdam,	18 cks.
Ochre—	
Treport,	39 cks.
Pitch—	
Rotterdam,	73 cks.
Hamburg,	27
Potash—	
Antwerp,	2 dms.
Hamburg,	20 cks.
Treport,	13
Sodium Phosphate—	
Rotterdam,	7 cks.
Sodium Prussiate—	
Antwerp,	9 brls.
Tartaric Acid—	
Rotterdam,	15 cks.
Tin Chloride—	
Rotterdam,	6 cks.
Tin Oxalate—	
Rotterdam,	6 cks.
Ultramarine—	
Rotterdam,	30 cs.
Hamburg,	20 cks.
Waste Salt—	
Hamburg,	qty.
Wood Pulp—	
Skien,	4,850 bls.
S. Petersburg,	5,716
Hamburg,	464 356 bdls.
Zinc Oxide—	
Rotterdam,	100 brls.

HULL.

Week ending July 14th.

Acid—	
Hamburg,	4 cks. Wilson, Sons, & Co., Ltd.
Aniline—	
Hamburg,	1 cs. Wilson, Sons, & Co., Ltd.
Antimony—	
Hamburg,	3 cs. Wilson, Sons, & Co., Ltd.
Barytes—	
Rotterdam,	100 bgs. Hutchinson & Son
Antwerp,	190 bgs. 63 cks. Bailey & Leatham
Chemicals (otherwise undescribed)	
Stettin,	15 cks. Wilson, Sons, & Co., Ltd.
Bari,	55 pks. Veltmann & Co.
Bremen,	4 cs. Wilson, Sons, & Co., Ltd.
Dunkirk,	22 pks. Wilson, Sons, & Co., Ltd.
"	20 100 bgs. "
Colours—	
Rotterdam,	40 pks. 24 cs. 40 cks. 12 brls. Hutchinson & Son
"	9 5 cs. 28 cks. W. & C. L. Ringrose
Antwerp,	4 brls. Wilson, Sons, & Co., Ltd.
Riga,	106 cks. Todd & Son
Ghent,	20 brls. 4 cks. Todd & Son
Bremen,	40 "
Antwerp,	1 tin. Bailey & Leatham
Hamburg,	1 tin. G. Malcolm & Son
"	20 cs. Sissons Bros. & Co.
"	5 cks. "
Dextrine—	
Stettin,	250 bgs. Wilson, Sons, & Co., Ltd.
Dyestuffs—	
Alizarine	
Rotterdam,	1 ck. 4 brls. 2 bxs. Hutchinson & Son
"	20 57 pks. 2 cs. W. & C. L. Ringrose
Fustic	
Trieste,	8 t. Wilson, Sons, & Co., Ltd.
Indigo	
Hamburg,	3 cs. Wilson, Sons, & Co., Ltd.
Madder	
Rotterdam,	9 cks. Hutchinson & Son

Myrabolams	
Bombay,	9,144 bgs.
Sumac	
Palermo,	1,060 bgs. Wilson, Sons, & Co., Ltd.
"	1,350
Farina—	
Stettin,	248 bgs. Wilson, Sons, & Co., Ltd.
Ghent,	210 cs. "
Hamburg,	250 bgs. "
Harlingen,	960
Glucose—	
Rotterdam,	80 bgs. Hutchinson & Son
Kaolin—	
Rotterdam,	264 bgs. Hutchinson & Son
Magnesium Sulphate—	
Amsterdam,	50 bgs. Bailey & Leatham
Manure—	
Stavanger,	287 bgs. Wilson, Sons, & Co., Ltd.
Mercury—	
Hamburg,	3 brls. Wilson, Sons, & Co., Ltd.
Mineral White—	
Trieste,	50 bgs. Wilson, Sons, & Co., Ltd.
Naphthaline—	
Hamburg,	2 pks.
Ochre—	
Rouen,	9 cks.
Oxalic Acid—	
Rotterdam,	5 cks. Bailey & Leatham
Paint—	
New York,	15 cs. Wilson, Sons, & Co., Ltd.
Paraffin Wax—	
New York,	54 cs. Wilson, Sons, & Co., Ltd.
Phosphate—	
Antwerp,	qty. Bailey & Leatham
Pitch—	
Hamburg,	2 cks. 60 brls.
Plumbago—	
Hamburg,	18 cks.
Pumice Stone—	
Messina,	116 pks. Wilson, Sons, & Co., Ltd.
Pyrites—	
Huelva,	723 t.
Rosin—	
Wilmington, N.C.,	3,404 brls. G. & J. Rawstorn
Salt—	
Hamburg,	20 t. 20 bgs.
Saltpetre—	
Antwerp,	135 bgs. Wilson, Sons, & Co., Ltd.
Soap—	
Trieste,	5 cs. Wilson, Sons, & Co., Ltd.
Starch—	
Rotterdam,	380 cs. Hutchinson & Son
Antwerp,	300 Bailey & Leatham
Ghent,	40 Wilson, Sons, & Co., Ltd.
Bremen,	1,892 Veltmann & Co.
Amsterdam,	40 W. & C. L. Ringrose
Rotterdam,	102 pks. "
Stearine—	
Antwerp,	25 bgs. Wilson, Sons, & Co., Ltd.
Sulphur—	
Catania,	50 t. 615 pks. Wilson, Sons, & Co., Ltd.
"	60 pks. 154 bgs.
Tar—	
Antwerp,	25 cks. Wilson, Sons, & Co., Ltd.
Tartaric Acid—	
Rotterdam,	1 brl. 3 cks. W. & C. L. Ringrose
Turpentine—	
Wilmington, N.C.,	1,158 brls. G. & J. Rawstorn
Ultramarine—	
Rotterdam,	8 cks. Hutchinson & Son
Varnish—	
Antwerp,	6 brls.

New York, 5 brls.	2 cs. 36 pks. Wilson, Sons, & Co., Ltd.
Hamburg,	2 cs.
White Lead—	
Antwerp,	17 cks. Bailey & Leatham
Rotterdam,	20 W. & C. L. Ringrose
"	24 Blundell, Spence, & Co.
"	26 Tudor & Sons
"	40 Johnson Bros.
"	10 T. F. Chambers & Co.
Wood Pulp—	
Abo,	125 bls. J. Good & Sons
"	85

GLASGOW.

Week ending July 19th.

Acetic Acid—	
Gothenburg,	1 ck.
Acetone—	
Rotterdam,	1 pcl.
Barium Sulphate—	
Antwerp,	100 bgs. 35 cks.
Barytes—	
Rotterdam,	11 cks.
Bi-phosphate of Lime—	
Marseilles,	131 cs.
Bone Meal—	
Bombay,	4,665 bgs.
Boric Acid—	
Leghorn,	9 cks.
Carbonic Acid—	
Rotterdam,	30 tubes.
Castor Oil—	
Marseilles,	307 cks. 30 pks.
Antwerp,	171
Colours—	
Rotterdam,	40 cks. 7 cs. 27 pks.
Cream of Tartar—	
Messina,	3 cks.
Marseilles,	10
Dyestuffs—	
Alizarine	
Rotterdam,	96 cks. 2 cs. 26 pks.
Cutch	
Rangoon,	1,627 pcs.
Extracts	
Antwerp,	3 cks.
Rouen,	15
Madder	
Rotterdam,	6 cks. J. Rankine & Son
Shumac	
Palermo,	30 bls. 960 bgs.
Farina—	
Antwerp,	20 bgs.
Glucose—	
New York,	150 brls.
Ochre—	
Leghorn,	30 bgs.
Marseilles,	221 cks.
Rouen,	16
Paint—	
Bombay,	431 kgs.
Paraffin Wax—	
Rangoon,	908 bks.
Pitch—	
Marseilles,	25 cks.
Potash—	
New York,	6 cks.
Rotterdam,	30
Pumice Stone—	
Genoa,	20 bgs.
Leghorn,	10
Messina,	5 14 cks. 11 cs.
Pyrites—	
Huelva,	1,832 t. Tharsis Co.
Rosin—	
New York,	1,250 brls.
Soap—	
Marseilles,	101 cs.
Christiania,	1 bx.
Sodium Nitrate—	
Tatlat,	15,202 bgs.
Starch—	
New York,	280 sks.
Antwerp,	200 cs.
Sulphur Ore—	
Seville,	1,240 t. Seville Sulphur & Copper Co., Ltd.
Tallow—	
New York,	80 hds. 25 tcs.
White Lead—	
Rotterdam,	51 cks.

Wood Pulp—	
Quebec,	750 bdls.
Christiania,	2,198 bls.
Zinc Ashes—	
Antwerp,	1 ck.
Zinc Oxide—	
Antwerp,	75 cks.
Zinc Sulphate—	
Rotterdam,	5 cks.
Zinc White—	
Rotterdam,	50 cks.

TYNE.

Week ending July 14th.

Alum Earth—	
Hamburg,	87 cks. Tyne S. S. Co.
Barytes—	
Antwerp,	25 cks. Tyne S. S. Co.
Carbonic Acid Gas—	
Rotterdam,	30 tubes. Tyne S. S. Co.
Limestone—	
Antwerp,	3 cts. Tyne S. S. Co.
Minium—	
Rotterdam,	8 cks. Tyne S. S. Co.
Phosphate—	
Antwerp,	300 t. Langdale's Chmcl. Manure Co.
Plumbago—	
Antwerp,	40 bgs. Tyne S. S. Co.
Soda—	
Rotterdam,	17 cks. Tyne S. S. Co.
Starch—	
Antwerp,	8 cs. Tyne S. S. Co.
Tallow—	
New York,	41 brls. 2 hds. Furness, Withy, & Co.
Tartaric Acid—	
Rotterdam,	4 cks. Tyne S. S. Co.
White Lead—	
Antwerp,	28 brls. Tyne S. S. Co.
Wood Pulp—	
Gothenburg,	106 bls.
New York,	163 tils. Furness, Withy, & Co.

GOOLE.

Week ending July 11th.

Caoutchouc—	
Boulogne,	2 cks. 2 cs.
Dyestuffs—	
Extracts	
Rouen,	60 cks.
Ghent,	100
Boulogne,	7
Logwood	
Jamaica,	530 t.
Madder	
Rotterdam,	3 cks.
Dyestuffs (otherwise undescribed)	
Rotterdam,	74 pks.
Ghent,	8 cks.
Boulogne,	25 56 5 cs.
Glucose—	
Hamburg,	10 cks.
Potash—	
Calais,	20 dms.
Dunkirk,	40 43 cks.
Pyrites—	
Huelva,	1,430 t.
Saltpetre—	
Hamburg,	72 cks.
Sulphur Ore—	
Seville,	690 t.
Waste Salt—	
Hamburg,	260 t.

GRIMSBY.

Week ending July 14th.

Aniline—	
Hamburg,	86 pks.
Antwerp,	20
Chemicals (otherwise undescribed)	
Hamburg,	21 cks.
Dyestuffs (otherwise undescribed)	
Dieppe,	12 cks.
Tannin—	
Hamburg,	13 cs.
Zinc Ashes—	
Antwerp,	9 cks.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 18th.

Acetic Acid—		
Wellington, 15 cs.	£23	
Acids—		
Cape Town, 50 cs.	£44	
Ammonia—		
Gothenburg, 15 dms.	£15	
Ammonium Carbonate—		
Melbourne, 7 c.	£13	
St. Petersburg, 12 t.	390	
Paris, 17	100	
Ammonium Chloride—		
Adelaide, 17 c.	£22	
Odessa, 6 cks. 2 t.	102	
Ammonium Sulphate—		
Demerara, 25 t. 2 c.	£357	
Cologne, 20	275	
Rotterdam, 27 10	380	
Paris, 25	380	
Bremen, 199	2,786	
Hamburg, 450	6,300	
Emmerich on Rhine, 100 t.	1,400	
Arsenic—		
Napier, 11 t. 10 c.	£190	
Sevastopol, 11	9	
Bisulphite of Lime—		
Calcutta, 1 t. 19 c.	£32	
Boric Acid—		
Melbourne, 1 t. 10 c.	£52	
Borax—		
Delagoa Bay, 1 t.	£22	
Sydney, 250	250	
Rotterdam, 16 c	38	
Harlingen, 3	12	
Velle, 19	49	
Hamburg, 6 cks.	45	
Carbolic Acid—		
Calcutta, 48 dms.	£33	
Algoa Bay, 4 t. 1 c.	45	
Sydney, 20 dms. 1 cs.	26	
Dunedin, 7 cks.	7	
Napier, 100	88	
Marcellis, 6 t. 17 c.	305	
Antwerp, 40 cs.	47	
Carbon Bisulphide—		
New Orleans, 40 dms.	£43	
Caustic Potash—		
Napier, 3 t. 11 c.	£131	
Caustic Soda—		
E. London, 5 t. 2 c.	£60	
Melbourne, 1 15	36	
Algoa Bay, 1 4	32	
Wanganui, 5	62	
Geelong, 5 3	60	
Delagoa Bay, 3	8	
Lyttelton, 10	86	
Chemicals (otherwise undescribed)		
Shanghai, 4 cs. 13 c.	£32	
Antigua, 4	24	
Brisbane, 6	15	
Colombo, 2 cks.	6	
Calcutta, 15	140	
Algoa Bay, 3	19	
Sydney, 3	10	
Chloride of Lime—		
Natal, 10 cs.	£8	
Citric Acid—		
Antwerp, 10 c. 4 cks.	£108	
Bermuda, 1	9	
Brisbane, 1	7	
St. Petersburg, 2 4	151	
Hamburg, 10 1	108	
Dusseldorf, 16	111	
Brussels, 5	35	
Lisbon, 3	22	
Jamaica, 1 kg.	7	
Coal Products—		
Aniline Dyes		
Calcutta, 1 cs.	£55	
Otago, 1	12	
Aniline Salts		
New York, 41 cks.	£250	
Anthracene		
Rotterdam, 95 cks.	£713	
Dusseldorf, 53 375 brls.	1,909	
Benzol		
Hamburg, 29 dms.	£179	
Rotterdam, 23 75 pns.	753	
Calcutta, 30 cks.	66	
Boulogne, 25 brls.	77	
Creosote		
Dieppe, 23,500 glns.	£123	
Naphthaline		
Hamburg, 200 cks.	£284	

Pitch		
New York, 1,597 bgs. 500 cks.	£535	
Newport News, 480	150	
Genoa, 28 brls.	63	
Sydney, 12	16	
Antwerp, 295 t.	350	
Dunkirk, 231	290	
Santander, 4 cks.	28	
Pyridine		
Calais, 1 ck.	£12	
Tar		
Algoa Bay, 81 pkgs.	£12	
Sydney, 10 brls.	11	
Rouen, 100	50	
Tar and Pitch		
Sydney, 50 brls.	£29	
Tar Oil		
Melbourne, 40 brls.	£86	
Boulogne, 70 cks.	100	
Tar Salts		
Hamburg, 40 cks.	£30	
Coal Products (otherwise undes.)		
Sydney, 23 brls.	£28	
Copper Sulphate—		
Auckland, 10 c.	£8	
Sydney, 5 t.	80	
Odessa, 5 4	80	
Otago, 2	30	
Bordeaux, 60	960	
Paris, 20	320	
Cream of Tartar—		
Sydney, 2 c.	£7	
Rockhampton, 2 t. 10	150	
Lyttelton, 4	270	
Adelaide, 1	64	
Melbourne, 1	67	
Cooktown, 1 4	15	
Napier, 1	78	
Cyanide—		
Algoa Bay, 1 t. 2 c.	£211	
Disinfectants—		
Sydney, 4 c.	£16	
Singapore, 5	12	
Penang, 3 cks.	15	
Rangoon, 4 pkgs.	12	
Trinidad, 50 6	57	
Calcutta, 450 dms.	35	
Hong Kong, 1,200 1 t. 13 c. 10 cs.	1,210	
Shanghai, 200 15	150	
Natal, 385 140 kgs.	108	
Melbourne, 4 cs.	10	
Otago, 6	8	
Guano—		
Trinidad, 10 t.	£112	
Barbadoes, 10	140	
S. Kitts, 50	540	
Nevis, 10	110	
Hypophosphite of Lime—		
Philadelphia, 11 c.	£206	
Magnesium Chloride—		
Colombo, 8 dms.	£8	
Manure—		
Jamaica, 1 t.	£21	
Demerara, 100	225	
Guernsey, 5 10 c.	39	
Gothenburg, 49 5	124	
Hamburg, 197 1	640	
Rouen, 44 19	167	
Treport, 99 11	600	
Stolpeunde, 200	738	
Metallic Oxide—		
Sevastopol, 8 c.	£98	
Nitric Acid—		
Jersey, 20 cbys.	£40	
Madras, 1 t. 18 c.	16	
Phosphorus—		
Sydney, 1 cs.	£10	
Las Palmas, 2 c.	11	
Potash Crystals—		
Malta, 1 ck.	£10	
Brussels, 7 c. 3 cs.	105	
Potassium Bromide—		
Cape Town, 1 cs.	£11	
Potassium Chlorate—		
Hamilton, Ont., 5 c.	£16	
Gothenburg, 10 kgs.	30	
Potassium Cyanide—		
Algoa Bay, 1 t.	£189	
Saltpetre—		
Melbourne, 3 t. 10 c.	£79	
Hamilton, Ont., 11	14	
Algoa Bay, 9	22	
Delagoa Bay, 1	22	
Santos, 10 4	236	
Sydney, 5	115	

Hobart, 10	11	
Bahia, 4	2	97
Rio Grande, 11	11	13
Rio de Janeiro, 7	4	169
Salts of Soda & Salts of Lime—		
Brussels, 2 cs.	£22	
Sheep Dip—		
B. Ayres, 190 dms.	£104	
Bahia Blanca, 1,501 cs.	3,000	
Calcutta, 160	30	
Port Elizabeth, 350 cs.		
Durban, 200		
E. London, 200	1,700	
Cape Town, 100		
E. London, 7 t. 1 c.	290	
Port Elizabeth, 1 17	90	
Soda—		
Delagoa Bay, 10 c.	£4	
Algoa Bay, 2 t. 5	7	
Soda Crystals—		
Berlice, 15 c.	£2	
Stockholm, 16 t. 3	33	
Cape Town, 3 5	8	
Newcastle, 30	70	
Aden, 1	5	
Sodium Bicarbonate—		
Demerara, 1 t.	£8	
Fremantle, 1	7	
Corinto, 1 10 c.	12	
Trinidad, 1	8	
Sodium Sulphate—		
Ghent, 50 t.	£50	
Sodium Tartrate—		
Montreal, 1 t. 3 c.	£65	
Spent Oxide—		
Wesseling, 185 t.	£249	
Sulphur—		
Pernambuco, 6 t. 7 c.	£34	
Mosel Bay, 300 kgs.	134	
Cape Town, 200 200 cks.	282	
Melbourne, 5 t.	28	
Corinto, 10 brls.	7	
Sydney, 2	16	
Hobart, 1	6	
E. London, 3 11 c.	37	
Sulphuric Acid—		
Natal, 5 t.	22 cs. £125	
Fremantle, 1 1 c.	1	9
Ottawa, 1		
Superphosphate—		
Timaru, 120 t.	£408	
Tartaric Acid—		
Sydney, 2 t. 5 c.	£221	
Wellington, 6	35	
Bombay, 4 cs.	30	
Melbourne, 2	158	
Boulogne, 5	27	
Zinc Chloride—		
Colombo, 5 cks.	£42	

Bleaching Powder—		
Boston, 794 cks.		
Lisbon, 28		
Malaga, 4		
Montreal, 82		
Piræus, 5		
Ancona, 7		
Baltimore, 52		
Bombay, 2 cs.		
Cape Town, 40 brls.		
Dunkirk, 8		
Genoa, 52		
Ghent, 62		
Gothenburg, 5		
Leghorn, 52		
New York, 211		
Norfolk, 30		
Philadelphia, 1		
Rouen, 43		
San Francisco, 50	50 brls.	
Sebastian, 4		
Boric Acid—		
Rotterdam, 1 t. 5 c.	£45	
Borax—		
Cadiz, 1 t. 14 c.	£35	
Hamburg, 4 6	87	
M. Video, 5 2	7	
Samsoun, 1	36	
E. London, 5 5	125	
Norfolk, 7	8	
Copenhagen, 17	12	
Rouen, 5	150	
Rotterdam, 4 17	97	
Carbolic Acid—		
Bombay, 5 t. 10 c.	£54	
Hong Kong, 18	13	
Yokohama, 1 1 3 q	64	
Genoa, 2	6	
Copenhagen, 1	39	
Hamburg, 10 18	607	
Philadelphia, 6 2	55	
Castor Oil—		
Alexandria, 10 cs.		
Caustic Potash—		
Pt. Elizabeth, 1 t. 7 c.	£32	
New York, 9 6	200	
Caustic Soda—		
Adelaide, 8 dms.		
Alexandria, 200		
Alexandria, 42		
Amsterdam, 47		
Gothenburg, 10		
Hamburg, 82		
Hio, 50		
Malta, 6		
Montreal, 170		
N. Orleans, 50		
Odessa, 32		
Rangoon, 64		
San Francisco, 150	30 brls. 30 bxs.	
Sydney, 39		
Valencia, 20		
Yokohama, 130		
Ancona, 35		
Antwerp, 40		
Barcelona, 284		
Bari, 36		
Bombay, 17		
Boston, 175		
Fiume, 45		
Genoa, 59		
Leghorn, 123		
Maceio, 2		
Melbourne, 52		
M. Video, 100		
New York, 150		
Pernambuco, 20		
Philadelphia, 50		
Rotterdam, 3		
Rouen, 35		
Santos, 75		
Singapore, 15		
Stettin, 3		
Tampico, 100		
Vera Cruz, 17		
Chemicals (otherwise undescribed)		
Barcelona, 1 t. 10 c.	£54	
Bombay, 30 cks.	170	
Rotterdam, 10	19	
Boston, 4 17	189	
Newfairwater, 1	37	
China Clay—		
Bombay, 228 cks. 110 bgs.		
Rotterdam, 100		
Boston, 1,255 t.		
Rio de Janeiro, 10		
Chromate—		
Rouen, 4 t. 18 c.	£191	

Coal Products—

Alizarine Oil	
Lisbon, 2 cks.	
Aniline Colours	
Constantinople, 3 cs.	
Yokohama, 5	
Aniline Oil	
Stettin, 9 brls.	
Aniline Salts	
Boston, 48 cs.	
New York, 13	
Anthracene	
Rotterdam, 23 cks.	
Creosote Oil	
Copenhagen, 10 brls.	
Naphthol	
New York, 6 cks.	
Pitch	
Accra, 10 brls.	
Akassa, 20	
Rotterdam, 40 tins.	
Alexandria, 6 cks.	
St. Nazaire, 665 t.	
Tar	
Accra, 10 brls.	
Akassa, 20	
Galatz, 25	
Manila, 6	
Philadelphia, 100	
Boma, 10 cks.	
Tar Oil	
Algoa Bay, 20 cks.	

Cobalt Oxide—

Nagasaki, 1 c.	£31
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Colours—

Calcutta, 1 cs. 5 pkgs.	
Boston, 1 bx.	
Manaos, 7 kgs.	
M. Video, 1 ck.	
Oporto, 1 cs.	
Valparaiso, 30 kgs.	

Copperas—

Madras, 7 t. 12 c.	£16
Smyrna, 4	7

Copper Sulphate—

Gothenburg, 1 t. 2 c. 1 q.	£15
Trieste, 30 6 3	413
Messina, 2 5	30
Lisbon, 5 1 3	69
Odessa, 4 19 3	68
M. Video, 2 1 3	28
Bordeaux, 30 9 3	439
Rotterdam, 4 1 3	56
Naples, 23 1 1	321
Galatz, 5	72
Oporto, 42 7 3	589
Ibrail, 4 18 1	76
Constantinople, 1 5	4
Sao Paulo, 1 9 3	23
Bari, 20 1 3	296
B. Ayres, 1 9 2	30
Marselles, 9 16 3	150
Ancona, 21 14 3	304
Caldera, 10 1	20
Rouen, 5	75
Tampico, 25	375
Alexandretta, 13 3	10
Amsterdam, 2 1	28
Hamburg, 11 1	8
Genoa, 14 15 2	199
Christiania, 4 4	56
Stettin, 4 4	56
Konigsberg, 4 4	56

Cream of Tartar—

Gd. Canary, 1 c.	£6
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Disinfectants—

Montreal, 4 c.	£6
Bombay, 10 2 q.	12

Farina—

Lisbon, 1 ck.	
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Iron Oxide—

B. Ayres, 26 t. 19 c.	£64
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Lime—

Boma, 5 t.	£5
Pt. Natal, 63 3 c.	100

Magnesia—

Havana, 1 cs.	
Mexico, 2	

Magnesium Sulphate—

Rio de Janeiro, 10 brls.	
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Manure—

Valencia, 40 t. 3 c.	£112
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Metallic Sodium—

Rotterdam, 5 t.	£983
Hamburg, 19	300

Nickel—

Matadi, 1 ck.	
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Ochre—

St. Domingo, 80 kgs.	
Valparaiso, 35 brls.	

Oxalic Acid—

Lisbon, 1 t. 3 c. 3 q.	£36
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Paint—

Addah, 5 kgs. 6 dms.	
Adelaide, 10 cks.	
Belize, 40	
Beyrout, 40	
Bilbao, 38 tins.	
B. Ayres, 10 cs.	
Cape Haitien, 5	
Cartagena, N.G., 8	
Genoa, 24 1	
Havana, 25 1	
Hong Kong, 20	
Ilo Ilo, 27	
Jaffa, 10	
Larnaca, 2	
Loanda, 1	
M. Video, 30	
Opobo, 26 6	
Rangoon, 6	
Rio de Janeiro, 28 16	
Tripoli, 6	
Congo, 12	
Dunkirk, 1 7	
Hamburg, 8 brls.	
Kingston, Jam., 150	
Malta, 7	
Manaos, 4	
Matadi, 10 12	
St. Domingo, 6 1	
San Juan, 1 5	
Santiago de Cuba, 3	
Sulina, 130	
Valparaiso, 13	
Vera Cruz, 4	

Painters' Colours—

Alexandria, 8 cks. 100 brls.	
Antwerp, 1 bx 19 kgs. 8 dms.	
Bay Beach, 59 1 3 brls.	
Cape Town, 10 cs.	
Galatz, 250 293	
Gothenburg, 50 bgs.	
New York, 146 5 1 270 brls.	
Para, 135 17 1 19	
Valleyfield, 2	
Belize, 41	
Benin, 31 2 dms. 4	
Bremerhaven, 13	
Larnaca, 4 1	
Lisbon, 2	
Pernambuco, 20	
Vera Cruz, 1 1 bx.	
Warri, 6 1 bx.	

Paraffin Wax—

Algiers, 6 cs.	
Bari, 10 bgs.	
Bilbao, 10 26	
Para, 15	

Phosphate—

Rouen, 10 t.	£30
Hioho, 5 cs.	

Phosphorus—

Yokohama, 40 cs.	£450
Hioho, 5	50
Hong Kong, 2	28
Shanghai, 25	260

Picric Acid—

Vera Cruz, 6 c.	£12
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Potash—

Manaos, 1 brl.	
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Potassium Bichromate—

Constantinople, 5 t.	£220
Lisbon, 5 c. 2 q.	19
Bari, 8 3	11

Potassium Carbonate—

New York, 6 c.	£7
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Potassium Chlorate—

Rotterdam, 1 t. 8 c.	£87
Alexandria, 5	16
New York, 9 10	547
Boston, 10	576
Copenhagen, 4 10	281
St. Petersburg, 1 10	80
Lisbon, 1 5	80
Hioho, 17 10	1,034
Genoa, 1	58
Hamburg, 10	31
Oporto, 4	13
Ancona, 8	25
Kalmar, 1	56
Leghorn, 1	56
Havana, 2	131
Shanghai, 2 10	143
Santos, 2	122

Potassium Muriate—

Boca, 2 c.	£2
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Potassium Prussiate—

Montreal, 1 c.	£10
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Potassium Silicate—

Amsterdam, 1 t. 4 c. 3 q.	£6
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Potassium Stannate—

Bombay, 1 t. 5 c. 2 q.	£95
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Rosin—

Montreal, 18 brls.	
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Rosin Oil—

Ibrail, 50 brls.	
Salt—	
Accra, 5 t.	
Antwerp, 585	
Belize, 20	
Boston, 700	
Calcutta, 6,652	
Cameroons, 119	10 c.
Faroe Islands, 172	
Ghent, 170	
Halifax, 1,470	
Kinsebo, 4 9	
Lisbon, 18	
Montreal, 813 18	
Mussera, 8 18	
Noqui, 14 5	
Old Calabar, 209	
Pt. Natal, 316 19	
Richibuch, 287	
Rio Gra de do Sul, 100 cs.	
Rotterdam, 200	
Tuborg, 452	
Anamaboe, 15 12	
Boma, 31 3	
C. C. Castle, 62 10	
Lagos, 300	
Landana, 22 6	
Matadi, 30 4	
N. Orleans, 300	
Pensacola, 406	
Rangoon, 961	
Rio del Rey, 20	
Salt Pond, 25	
San Francisco, 31 4	
Sette Cama, 15	
Sinoe, 5	

Saltcake—

Antwerp, 190 t.	£181
Philadelphia, 150 13 c.	172
Baltimore, 30 14	27

Saltpetre—

Rio de Janeiro, 8 c. 3 q.	£10
Maranham, 1 t. 1 3	26
Maceio, 1 9 2	34

Sheep Dip—

E. London, 6 c.	£10
Algoa Bay, 12 t. 2	400
Punta Arenas, 60 cks.	360
Montreal, 3 3 q.	70

Soap—

Accra, 120 bxs.	
Aden, 250	
Alexandria, 35	1 cs.
Amsterdam, 210	
Banda, 500	
Barbadoes, 540	
Belize, 1,445	
Bluefields, 400	
Boma, 10	
Bombay, 520 38	
Bordeaux, 25 22	250 bdl.
Calcutta, 25	
Callao, 4	
Cameroons, 50	
Cette, 40	
Constantinople, 300	25
Drewin, 50	
E. London, 50	
Falmouth, Ja., 115	
Gibraltar, 286 4	
Gr. Bassam, 100	
Guayaquil, 676	
Hamburg, 600	
Las Palmas, 20	
Malta, 90 31	
Manaos, 203	
Manila, 21	
Matadi, 21	
Mauritius, 21	
Old Calabar, 600	
Piraeus, 17 pkgs. 90	20
Rangoon, 501	
Sava nah la Mar, 300	
Sierra Leone, 250	
Surinam, 245	
Syria, 180	
Teneriffe, 150	
Trinidad, 650	
Volo, 90	17 pkgs.
Algoa Bay, 20	
Christiania, 20	
Kingston, Jam., 160	
Lagos, 100	
Loanda, 1	
Madras, 10	
Montreal, 25 kgs.	6 2 brls.
Philadelphia, 267 50	10 cks.
Pt. Natal, 1	
Rio de Janeiro, 660	
Rouen, 35	
St. John's, N'fd, 3	
St. Lucia, 125	
Shanghai, 100	
Warri, 200	

Soda—

Lisbon, 2 cks.	
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Soda Alkali—

Callao, 35 brls.	
Lisbon, 40	
Melbourne, 74	
Passages, 140	
Smyrna, 40	
Syria, 40	

Soda Crystals—

Boston, 140 brls.	
Constantinople, 50	
Philadelphia, 318 6,3 cks.	
B. Ayres, 10	
Gibraltar, 75	
Kingston, Ont., 75 kgs.	
Montreal, 100 50 dms.	
N. Orleans, 140	
New York, 280	
Rotterdam, 50 brls.	

Soda Ash—

Baltimore, 173 cks. 4,141 bgs.	
Boston, 129 126 tcs. 800	
Cyprus, 100 brls.	
Hamburg, 100 50 cks.	
Malaga, 45 tcs. 80 4	
Montreal, 3,736 203	
New York, 88 169 120	
Philadelphia, 25	
Rio de Janeiro, 25	
Smyrna, 200	
Syria, 50	
Varna, 100	
B. Ayres, 200	
Calcutta, 38 100 kgs.	
M. Video, 20	
Piraeus, 20	
Rotterdam, 250 bgs.	
Stockholm, 50 72	
Yokohama, 50	

Sodium Arseniate—

Passages, 1 ck.	
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Sodium Biorate—

Hamburg, 42 cks.	
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Sodium Bicarbonate—

Bordeaux, 40 kgs.	
Copenhagen, 25 cks.	
Hamilton, Ont., 100	25 bgs.
Konigsberg, 102	
Malaga, 20	2 brls.
Philadelphia, 434	
San Francisco, 80	
Calcutta, 257	
Hamburg, 50 5	
London, Ont., 10	
Montreal, 450 5 20 bgs.	
Palermo, 20 2	
Rouen, 7	98 pkgs.
Sourabaya, 4	
Toronto, 25	140 bgs.
Venice, 40	
Windsor, Ont., 25	

Sodium Borate—

Bilbao, 91 cks.	
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Sodium Carbonate—

Boston, 56 brls.	
New York, 56	

Sodium Chlorate—

Danzig, 24 kgs.	
Hamburg, 20	
Lisbon, 1 ck.	
New York, 60	

Sodium Silicate—

Ghent, 4 brls	
Malta, 12	
San Sebastian, 32 cks.	
Valencia, 5	

Sulphur—

Maceio, 14 c. 3 q.	£5
Manaos, 1 t. 10	9
Calcutta, 15	56
Boston, 501	1,630
Ghent, 5	18

Superphosphate—

Stettin, 1,085 t.	£2,951
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Tartaric Acid—

Gr. Canary, 1 c.	£6
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Tin Crystals—

Lisbon, 5 c. 3 q.	£26
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Turpentine—

Ilo Ilo, 10 dms.	
Alexandria, 195	

Varnish—

Copenhagen,	
Hamilton, Ont.,	100

PRICES CURRENT.

WEDNESDAY, JULY 25th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	10/6
Glacial		50/-	
Arsenic S.G., 2000°		0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.		0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous		0	0 1¼
Oxalic	nett	0	0 3¼
Phosphoric, 1750°		0	1 0
Picric		0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)		5	10 0
(Pyrites, 168°)		3	0 0
(free from arsenic, 145°)		1	5 0
Sulphurous (solution) S.G. 1025		3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric		0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)		5	2 6
Alumina Sulphate (pure)		5	0 0
Aluminoferrous		2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous		0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.		0	0 2¼
" Carbonate	nett	0	0 3¼
" Muriate	per ton	22	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-
" Nitrate	per ton	44	0 0
" Phosphate	per lb.	0	0 10½
" Sulphate (grey) London	per ton	13	16 3
" (grey) Hull		13	15 0
Aniline Oil (pure)	per lb.	0	0 5½
Aniline Salt		0	0 5¼
Antimony	per ton	32	0 0
" (tartar emetic)	per lb.	0	0 9½
" (golden sulphide)		0	0 10
Barium Chloride	per ton	6	10 0
" Carbonate (native)		3	10 0
" Sulphate (native levigated)		45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
" Liquor, 7 %		3	10 0
Bisulphide of Carbon		11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk		17/6	to 30/-
Coal Tar Products and Dyes:—			
Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta		0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	0 11½
50/90		0	1 0
Carbolic Acid (crystallised 40°)	per lb.	0	0 6
(crude 60°)	per gallon	0	1 8
Creosote (ordinary)		0	0 1¾
(filtered for Lucigen light)		0	0 3
Crude Naphtha 30 % @ 120° C.		0	0 5½
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston		1	12 6
Solvent Naphtha, 90 % at 160°	per gallon	0	1 4
Lucigen and "Wells" Oils		0	0 2½
Copper	per ton	38	2 6
" Sulphate		14	7 6
" Oxide (copper scales)		39	5 0
Glycerine (crude)		15	0 0
(distilled S.G. 1250°)		41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	4 0
" Sulphide (antimony slag)		2	0 0
Lead (sheet) for cash		10	10 0
" Litharge Flake (ex ship)		13	0 0
" Acetate (white)		25	0 0
" brown		15	15 0
" Carbonate (white lead) pure		20	0 0
" Nitrate		19	10 0

	£	s.	d.
Lime, Acetate (brown)	per ton	6	0 0
" (grey)		10	5 0
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	10 0
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate		17	15 0
" Borate	per cwt.	2	12 6
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 2
Naphtha (Wood), Solvent		0	3 7
" Miscible, 60° O.P.		0	4 0
Oils:—			
Cotton-seed	per ton	21	0 0
Linseed		22	10 0
Petroleum, American	per gallon	0	0 5¼
Stearine	per ton	27	0 0
Phosphorus (yellow)	per lb.	0	2 2
" (red)		0	2 9
Potassium (metal)	per oz.	0	3 7
" Bichromate	per lb.	0	0 4½
" Carbonate, 90% (ex ship)	per ton	16	15 0
" Chlorate	per lb.	0	0 7
" Cyanide, 98%		0	2 3
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
" (Caustic Potash) 75/80 %		20	0 0
" (Caustic Potash) 70/75 %		19	10 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	2 6
" Prussiate Yellow	per lb.	0	0 10½
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)		8	7 6
Silver (metal)	per oz.	0	2 4½
" Nitrate		0	2 10
Sodium (metal)	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	17 6
" (Caustic Soda-ash) 48 %		4	2 6
" (Carb. Soda-ash) 48 %		4	0 0
" (Alkali) 58 %		3	15 0
" (Soda Crystals)		2	10 0
" Acetate (ex-ship)		14	15 0
" Arseniate, 45 %		11	0 0
" Chlorate	per lb.	0	0 8
" Borate (Borax)	net, per ton	22	0 0
" Bichromate	per lb.	0	0 3¼
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10 to 15	0	0
" (74 % Caustic Soda)		9	15 0
" (70 % Caustic Soda)		8	15 0
" (60 % Caustic Soda)		7	15 0
" (60 % Caustic Soda, cream) (f.o.b.)		7	12 6
" Bicarbonate		5	12 6
" Hyposulphite		5	10 0
" Manganate, 30% ex-ship Liverpool	per cwt.	0	9 1½
" Nitrate, 95 %	per ton	29	10 0
" Nitrite, 98 %		15	0 0
" Phosphate		5	7 6
" Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)		4	5 0
" Stannate, 40 %	per cwt.	3	0 0
" Sulphate (Salt-cake)	per ton	0	17 6
" (Glauber's Salts)		1	5 0
" Sulphide		8	10 0
" Sulphite		5	9 6
Strontium Hydrate, 100%		8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7¼
" Barium, 95 %		0	0 5
" Potassium		0	0 7¼
Sulphur (Flowers)	per ton	7	5 0
" (Roll Brimstone)		5	7 6
" Brimstone: Best Quality		3	15 0
Superphosphate of Lime (26%)		2	7 6
Tallow		25	0 0
Tin Crystals	per lb.	0	0 6
English Ingots		70	0 0
Zinc (Spelter)	per ton	15	17 6
" Chloride (solution, 96° Tw.)		5	10 0

THE CHEMICAL TRADE JOURNAL

AND
OIL, PAINT and COLOUR REVIEW.

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No. 376.

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Vol. XV.

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LATE ADVERTISEMENT.

TO CHEMICAL PLUMBERS.—Wanted First-class Chemical Plumbers, Men preferred who can do both house and chemical plumbing. None but practical men need apply.—T., *Chemical Trade Journal* Office.

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

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Our Registered Telegraphic Address is—
"Expert, Manchester."

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Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE CARRIAGE OF CHEMICALS BY THE SHIP CANAL.

THE Manchester Chamber of Commerce recently issued a circular asking manufacturers to support the Canal. In the chemical trade manufacturers are doing so, and others would do so if they had the chance. There are certain difficulties, however, in some cases which no amount of solicitation can surmount, and on which manufacturers would be only too glad to have the advice and help of such an influential body as the Manchester Chamber of Commerce. The fact of freights being higher by the Canal is not the only factor that prevents manufacturers from sending their goods by this route. On the contrary, it is in cases where the rates are actually cheaper than other more serious factors come into play. Manufacturers are perfectly aware that "failures, delays, and imperfections" must be expected when first using the direct water route, and, we venture to think, would not have any hesitation in doing all they could to assist the Canal Company to overcome incidental difficulties. It is not upon such trivial matters, however, that manufacturers stand in need of advice from the Manchester Chamber of Commerce.

Competition—legitimate competition—is desirable. It is a healthy sign. Manufacturers are, moreover, quite capable of fighting such competition on behalf of their own interests and those of the Canal. Correspondence which has appeared in the daily Press has shown this statement to be true. But there is another kind of competition,—namely, that which is carried on covertly, under a guise of masterly indifference amounting almost to friendliness—which bodes no little trouble to would-be users of the canal. In short, however willing manufacturers may be to foster the Canal, and even though they may have gone to the expense of providing themselves with special facilities for using the Canal as soon as it was ready, they cannot afford to be "boycotted," however much they may wish to support the Canal. When manufacturers, who formerly sent their stuff to Liverpool, find that because they sent a small consignment—a mere trifle—by the Canal, the rates for the bulk of their consignments *via* Liverpool have been increased by 50 to 100 per cent., and worse than all, the rates of their keenest competitors reduced 50 per cent., how is it possible for them to do otherwise than give the undertaking so revoltingly extorted, to send their goods wholly and solely through Liverpool? The conditions we have instanced constitute no chimera, but are matters of fact. They reveal a position of affairs which it is not pleasant to meditate upon. There is something sneaking and underhand about the whole thing. Open war would be infinitely preferable. Unfortunately the battle is one manufacturers are scarcely fitted to fight, supposing they had the time at their disposal. All the "unfailing patience" in the world will not enable them to get their goods carried to foreign destinations *via* the Canal, when such fearful freights are imposed on those

portions of their cargo which the Canal is not yet in a position to deliver.

We have wished the Canal success all along, and seeing the Manchester Chamber of Commerce has appointed a Shipping Committee to "consider questions affecting the traffic of the port," by whom an invitation is extended to "relevant suggestions," we feel constrained to put forward the above facts, as being highly relevant and well worthy of being brought under the notice of the Shipping Committee.

THE GOVERNMENT AND THEIR NEWSPAPERS.

As will be seen from our columns last week the Government are about to issue the first number of an official Agricultural Journal in September. The tendency for Government departments to run what may be called trade organs seems a growing one. Why the old method of selecting suitable organs for giving publicity to any information which it is desirable should be communicated to the public is being abandoned so persistently, is not for us to say. Journalism, and especially technical and trade journalism, is not picked up in a few weeks, and there is no evidence that Government officials are especially fitted for the capacity of technical editors. Moreover, this new system opens the door to abuses which were not possible under the old régime.

The chief grievance, however, lies in the advertisements. It is not stated whether the new venture is to have advertisements, but things seem generally to fall out pretty much after this style: An official organ is started, opposition being quashed by the cry that there will be no advertisements. But papers cannot be run for nothing, nor yet a trifle, as all outside journalists know only too well. Consequently, ere long the organ becomes an expense to the Department. Then a few select advertisements are put in just to pay expenses, and so the thing grows until the paper becomes a formidable rival, competing closely with outside recognised organs, run by private interests. This truth is forcibly substantiated by comparing the advertisement columns of the *Official Journal of Patents* of this week with the same journal in March, 1892. The comparison shows a wonderful extension for so comparatively short a time, while the diversity of the advertisements indicates how widespread the injury done must be. And the Patent Office made a profit of over £79,000 last year. In the particular case in question it is not as if there were no agricultural organs of standing. If these are not good enough, however, why could not the new organ of the Agricultural Union have been requisitioned instead of starting yet another Government newspaper? Now the system has a footing, the difficulty is to know where it is to end. We cannot better illustrate the possibilities of this new method than by quoting the words of the Secretary of the Newspaper Society: "If the Board of Trade, the Labour Department, the Board of Agriculture, and the Patent Office are to run newspapers, why not other Departments? There is still scope for a Local Government Board 'Journal,' a War Office 'Gazette,' (and we would suggest as a further possibility an Explosives and Oil Trade 'Monitor,') a Foreign Office 'Advertiser,' a Post Office 'Telegraph,' a Home Office 'Intelligencer,' a Treasury 'Budget,' the Admiralty 'Contractor,' and the Privy Council 'Tipster.' Each of these organs would, of course, endeavour to support itself with more or less success by the assistance of a semi-official Government canvasser privileged to use the Royal Arms, frank his touting circulars through the post, and to purchase at waste-paper price any quantity of the journal he represents so as to keep up the show of a

decent circulation." It is to be hoped we are a long way from attaining to such a state as the foregoing depicts, though the thin end of the wedge is now fairly inserted. It is not so much the individual offenders of the present that we object to, but the perniciousness of the principle, and the possibilities which are opened up by its further adoption.

EMPLOYMENT AGREEMENTS.

This week has brought the decision of the House of Lords on a most important point in an important case. The point is the justness of restraining persons from following any particular business for a great number of years after leaving the employment of some firm engaged in such a business. In other words, how binding a contract can be without restraint to trade. The case is that generally known as the Nordenfellt case, the interest of which to the chemical trade was largely due to its first being heard only a few weeks after a similar case affecting two well-known firms in the chemical trade. The decisions given in the respective cases were diametrically opposed to each other. The Nordenfellt case has, however, been the subject of two appeals, with the result that the decisions are now "on all fours" with each other. It may seem unjust to prevent a man from carrying on elsewhere the business with which he is best acquainted for 18 years after he has left certain employers for whom he has acted as manager or agent as the case may be, but the vital point is to know what the Law thinks. What the views of our highest tribunal are on such matters our columns this week show, and we advise all those who either are, or may be, affected by the facts there set forth, to give their attention to them.

INSTITUTION OF MECHANICAL ENGINEERS.—This year's meetings of the Institution of Mechanical Engineers were held at Manchester this week. The proceedings opened on Tuesday morning by a reception at Owens College. In the evening the members were entertained by the Lord Mayor at a conversation at the Town Hall. Visits to the gas-works, the electric light station, calico printing works and warehouses occupied some hours of the afternoon. A second session for the reading and discussion of papers was held at the College on Wednesday morning. A visit to the Ship Canal, under the guidance of Sir E. Leader Williams, the chief engineer, and Mr. Marshall Stevens, the general manager, was arranged for the same afternoon. An alternative programme included visits to the Hydraulic Power Supply Station, the Manchester Packing Warehouse, the Fire Brigade Station, and various works in the district of interest to engineers. Thursday and Friday were devoted entirely to excursions to works at Oldham, Bury and Rochdale, Bolton and Horwich, Crewe and Prescott, and also to the Manchester main drainage works.

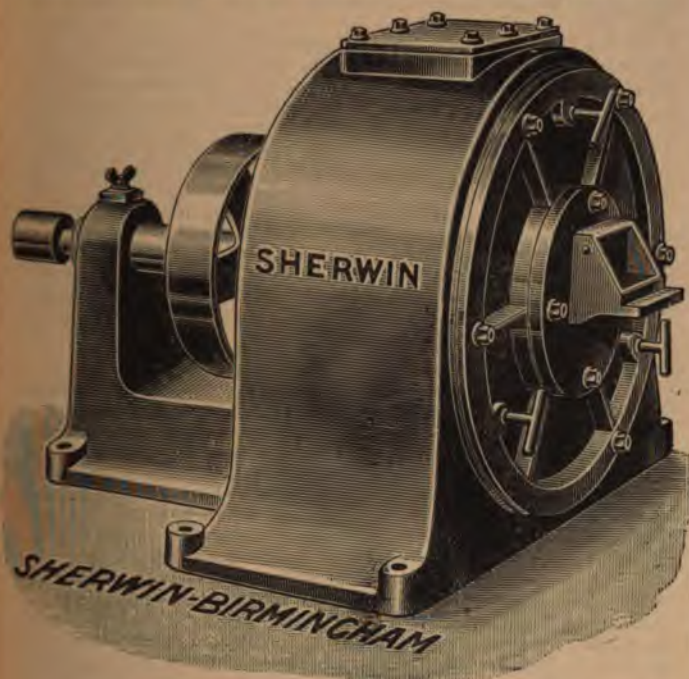
CHEMICALS FOR THE METROPOLITAN SEWAGE.—At the last meeting of the London County Council the Main Drainage Committee reported having considered tenders for the supply and delivery of 5,000 tons of proto-sulphate of iron at the Barking and Crossness outfall works. The tenders were 13 in number, and the prices quoted varied from 16s. 10½d. to 47s. 6d. per ton, the lowest being that of Messrs. W. Bevan and Co., Swansea. The result of the inquiries respecting this firm being satisfactory, it was agreed that, subject to an estimate being submitted to the Council by the Finance Committee, as required by the statute, the tender of Messrs. W. Bevan and Co. for 5,000 tons of proto-sulphate of iron, at 16s. 10½d. per ton, be accepted, and that the solicitor be instructed to prepare the contract. The Committee had also considered the tenders for the supply and delivery of 22,000 tons of lime at the Barking and Crossness outfalls. Fourteen firms had tendered for the whole or a portion of the required quantity, and their offers varied from 12s. 6d. to 20s. 4d. per ton. The following were the three lowest tenders: Mr. William Fletcher, of Gravesend, 5,000 tons at 12s. 6d. per ton, 5,000 tons at 12s. 9d. per ton; Messrs. C. Christopherson and Co., 10,000 tons at 12s. 9d. per ton, 2,000 tons at 13s. per ton; Messrs. H. Wallace and Co., 22,000 tons at 12s. 9d. per ton. The committee recommended that, subject to an estimate being submitted to the Council by the Finance Committee, as required by the statute, the following tenders be accepted: Mr. William Fletcher, 5,000 tons at 12s. 6d. per ton, 5,000 tons at 12s. 9d. per ton; Messrs. C. Christopherson and Co., 10,000 tons at 12s. 9d. per ton; Messrs. H. Wallace and Co., 2,000 tons at 12s. 9d. per ton; and that the solicitor be instructed to prepare the necessary contracts.

THE "SHERWIN" MILL.

THE "Sherwin" Rotary Screen Mill shown in the following engraving (which has been specially prepared for us from a photograph) contains in the one machine a complete grinding plant, comprising disintegrator, rotary screen, elevator, and conveyor; the saving in first cost, and the extremely small amount of space occupied, being largely in favour of the "Sherwin" Mill.

There are only two moving parts; beaters, driven by the small pulley, and rotary screen, driven by the large pulley. There would be at least some fifteen to twenty moving parts in the ordinary grinding plant.

When fed into the hopper in front of the machine, the material is broken by beaters revolving rapidly within a serrated chamber. When the ground material reaches the end of this chamber nearest the back of the mill, it falls on to a rotary screen, and the whole of the material that is fine enough passes through this screen and leaves the mill. That which is not fine enough is returned again into the beater chamber. It is, therefore, absolutely impossible for any part of the



material to leave the mill until it has passed through this screen, which is made of woven steel or brass wire of any desired fineness, from 10 to 120 holes per lineal inch. The entire working parts can be drawn out of the casing for inspection by simply removing the round cover in front of the mill.

The solid design and graceful curves of this mill give it a very elegant appearance, but what will probably most strike the practical user is the thorough completeness and simplicity of this rotary screen mill, which is named after the maker, Mr. Geo. E. Sherwin, Almay-street, Birmingham.

THE STATE OF THE CHEMICAL TRADES.

IN the Tyne and Wear district paper makers are dull, while chemical, cement, and copper works are quiet. There is virtually no change in the dyeing and finishing trade about Manchester. At St. Helens and Widnes, chemical, copper, and glass workers are very slack. At St. Helens, half-time is being worked by one firm in the plate-glass trade. Paper and pulp works in the Barrow district are, however, still busy. The salt trade about Middlesbrough keeps much the same. Employment in the paint and colour trades at Hull and neighbourhood is fairly good. The seed crushing trade is slack, as is generally the case at this time of the year. Chemical workers are finding things rather dull in Derbyshire, but paper makers are busy. Dyers and bleachers around Belper are slack. Trade is fair with india-rubber workers in Edinburgh and district; with paper makers it is quiet; with tanners and curriers it is bad.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of June, 1894, as compared with the same month of 1893:—

ALKALI.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Russia	43,489	17,787	17,706	6,365
Sweden and Norway	12,053	10,268	2,853	1,957
Germany	13,260	13,769	4,461	4,221
Holland	9,461	11,965	2,445	2,738
France	3,231	3,485	1,263	1,522
Spain and Canaries	30,297	24,005	13,832	9,652
Italy	20,382	15,143	8,353	5,783
United States	206,537	188,797	61,326	45,965
Australasia	12,417	23,597	3,832	8,688
British North America ..	21,284	16,535	6,433	4,056
Other countries	78,960	84,352	28,893	28,296
Total	451,371	409,703	151,397	119,243

BLEACHING POWDER, ETC.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
United States	100,856	55,998	43,048	22,848
Other countries	53,578	40,616	22,526	16,021
Total	154,434	96,614	65,574	38,869

Reports of Companies.

PALMER AND CO., LIMITED.

THE third annual general meeting of the shareholders of Palmer and Co., Limited, was held on Tuesday, at Winchester House, E.C. Mr. Dampier Palmer, M.P. (the chairman), moved the adoption of the report and accounts, and expressed regret, on behalf of the Board, that the result of the twelve months' working was not more satisfactory. The outcome of the year's business was that, whereas last year they made a handsome profit of £11,670. on trading, this year it had only been the practically nominal amount of £300. It had been an eminently unsatisfactory year for them. They had suffered from a combination of adverse circumstances. The depression in trade generally was a matter of common knowledge, and in the candle trade it had been specially bad. The coal strike seriously affected a district where they did their heaviest trade, and enormously decreased the consuming power of their customers. Then, just at the busiest part of the season, they had the misfortune to lose their late secretary (Mr. Williams), who had been connected with the company from its inception, and with the firm for thirty years. A vast amount of additional work was thrown on the Board and the managing director in consequence. When the directors found the severe competition that was going on, they took steps to open up new markets abroad and to introduce new manufactures at home, and this they had done with satisfactory results, inasmuch as, although there had been a diminution in the wax-candle trade, which used to form the bulk of their business, the volume of their trade showed an increase. The great reason for the unsatisfactory results of the year had been the competition that had been going on, and to put an end to which the Board would gladly co-operate. A satisfactory feature in regard to the future was that the oil trade—an important branch of their business—showed a steady tendency to increase. Mr. G. B. Game seconded the motion, which, after a short discussion, was agreed to.

DIVIDENDS.

The United Alkali Co., Limited, has declared an interim dividend of 7s. per share on the preference shares for the half-year to the 30th ult. There is no distribution on the ordinary.

Jeyes' Sanitary Compounds Co., Limited, announces the declaration of an interim dividend at the rate of 10 per cent per annum for the six months ended June 30th.

Price's Patent Candle Co., Limited, recommends a dividend of 10s. per share for the half-year ended June.

Legal Intelligence.

HOUSE OF LORDS.

(Before the Lord Chancellor, Lord Watson, Lord Ashbourne, Lord Macnaghten, and Lord Morris.)

NORDENFELT (Pauper) v. THE MAXIM NORDENFELT GUNS AND AMMUNITION CO., LTD.

IMPORTANT DECISION ON EMPLOYMENT AGREEMENTS.

The final decision in this case was given by the House of Lords on Tuesday last. The case was one of particular interest, as it turned upon the reasonableness of the contract entered into by the appellant. He was bound not to carry on any similar business for 25 years after the commencement of his agreement with the company. The case was heard in August, 1892, in the Chancery Division, when Mr. Justice Romer gave judgment for Mr. T. Nordenfelt on the ground that the contract was too wide and general (*C.T.J.* 274, p. 113). The company appealed, and the case was heard in the Court of Appeal in December, 1892. Lords Justices Lindley, Bowen, and Smith there reversed the ruling of Mr. Justice Romer on the ground that the contract was not opposed to public policy, and the ruling as to the general restraint of trade did not apply. An appeal was made to the House of Lords, where the appellant claimed that the agreement between himself and the Company could not be held good, as its effect is to prevent his earning a living in any part of the world. Mr. Nordenfelt sold to the respondents certain rights in respect of his guns, and made an agreement not to enter into competition with the Company. Later difficulties arose, with the result that Mr. Nordenfelt's connection with the Company was severed, and he now claims that they have no right to prevent his obtaining a livelihood. The respondents contend that there are other things in connection with arms and explosives to which the applicant can turn his attention, but that as there is only one customer in a country—the Government—the agreement cannot be confined to one alone. Their Lordships decided in favour of the respondent Company, dismissing the appeal. Lord Watson observed that the question from a legal point of view was exceptional, and not to be found in any reported decision.—The judgment was without costs, as the appellant appealed *in forma pauperis*.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before Mr. Justice Mathew and Mr. Justice Kennedy).

LINDSAY (APPELLANT) v. ROOK (RESPONDENT).

This was a case stated by justices for the city of Manchester. An information was preferred by Andrew Thomas Rook (the respondent) against Mary Lindsay (the appellant) under section 6 of the Sale of Food and Drugs Act, 1875, for selling to the prejudice of the purchaser a certain article of food—to wit, malt vinegar—which was not of the nature, substance, and quality of the article demanded by such purchaser, contrary to the form of the statute. Upon the hearing of the said information the facts proved, so far as they are material to this report, were as follows:—That the appellant was a provision dealer at 7, New York-street, Chorlton-upon-Medlock, in the city of Manchester, and that one Thomas Holland, on September 19th, 1893, applied to the appellant for a "pint of malt vinegar," and was supplied by the appellant from a cask in the shop, which had on it a red-coloured printed label bearing the words, "Vinegar warranted unadulterated—Grimble and Co. (Limited), Cumberland-market, London"; that the vinegar so sold by the appellant was invoiced to her as "Grimble's vinegar," and the cask supplied contained on its end the red-coloured printed label above referred to; that the vinegar sold by the appellant was pure malt vinegar, but that it contained 30 per cent. of added water, such addition being an ingredient not injurious to health, and having been made by Grimble and Co., the brewers and makers thereof, because the same addition was required for the production and preparation of the said vinegar as an article of commerce in order that the same might be sold at a low price. The appellant contended (*inter alia*) that, having purchased the article invoiced to her as aforesaid, and with the label before mentioned upon the cask in which it was contained, and sold it in the same state in which she had purchased it, it was within the protection of section 25 of the Food and Drugs Act, 1875, and that such a label and invoice amounted to a written warranty within the meaning of the Act. The magistrates held that the appellant was not within the protection of section 25 of the said Act, and convicted the appellant. The question for the opinion of the Court material to this report was "whether the invoice containing the description of the article as 'cask Grimble,' with the label on the cask containing the words 'Vinegar warranted unadulterated, Grimble and Co. (Limited), Cumberland-market, London,' constituted a warranty within the meaning of section 25 of the said Act." Conviction quashed.

THE MERSEY AND IRWELL JOINT COMMITTEE.

The usual monthly meeting of the Committee was held last Monday, at the offices, Mosley-street, Manchester, Mr. Ald. J. Thompson presiding.

REPORT OF THE CHIEF INSPECTOR.

The Chief Inspector (Mr. R. A. Tatton) presented his report, in which reference was made to the pollution sent into the Glaze Brook from the farm of the Leigh Local Board. He also drew attention to the Westhoughton Sewage Farm. No extensions of time in connection with manufacturing pollution came up for consideration.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

Nine firms appeared to show reason why proceedings should not be taken under the Committee's Act. To seven of these a term of three months was allotted in which to complete purification works. Some had works which were inefficient, while in others the effluent was improperly treated, no precipitant being used. In the case of one firm, the matter was adjourned for one month, and in the case of the Rochdale Wool-scouring Company, it was decided to make application to the Local Government Board for permission to prosecute.

Messrs. Knowles and Co. attended, having been absent at the last meeting through a misapprehension. A sample had been taken, but no analysis made. The deputation, however, were able to produce an analysis they had had made. As the matter had been standing over from the last meeting, Mr. Alderman Walmsley commented somewhat severely upon the position in which the Committee were placed by the analysis of the water not having been done. Such errors, he said, ought never to occur. The case was adjourned for a month.

The report on 29 effluents appended to the report of the Chemical Sub-Committee shows pretty distinctly that artificial filtration gives better results than land filtration. In one case the former method showed 0.33 grains per gallon of absorbed oxygen, the latter at the same works showing 1.99 grains per gallon. The effluent from the Manchester Works is the worst but one with 2.86 grains per gallon.

CONSULTING SUB-COMMITTEE'S REPORT.

Mr. T. W. Killick submitted the report of the Consulting Sub-Committee with regard to works in progress or contemplation by the local authorities of Droylsden, Middleton, Aspull, Mottram-in-Longendale, Hollingworth, Farnworth, Bolton, Marple, Swinton, and Pendlebury, Hayfield, Glossop, Chapel-en-le-Frith, Stockport, and Hindley. In each of the cases where works are in progress an extension of time was given for their completion, and in the other cases the Clerk was instructed to take steps to expedite matters. The Committee agreed to postpone taking proceedings against Prestwich for a month on the understanding that steps would in the meanwhile be adopted to improve the effluent. Proceedings were ordered to be taken against Westhoughton, and the Clerk was instructed to write to the Whitefield Local Board informing them that if the condition of their effluent did not improve during next month proceedings would be taken against them. An extension of time for three months was granted to the Manchester Corporation to improve the condition of the Davyhulme Sewage Works, and it was resolved to ask the Corporation to furnish to the Joint Committee an official statement of the area covered by their sewers, together with the population at present unconnected with the sewers.—On the motion of Dr. Hewitt it was agreed to take proceedings against the Leigh Local Board, with regard to whose sewage farm Mr. R. A. Tatton reported that the ditches through which the effluent water passed were in a black and stinking condition. Only a small portion of the farm was being used, and the treatment of the sewage was conducted in a careless and negligent fashion. A communication was read from the Manchester Ship Canal Company calling attention to the fact that the Salford Corporation had refused to allow them to inspect their intercepting sewer, and mentioning that the Local Government Board had no power to compel the Corporation to give them such permission. They now asked the Irwell and Mersey Joint Committee to direct the attention of their inspectors to the sewer in question.—Dr. Walmsley said he should like to make a personal statement. The Ship Canal Company applied some considerable time ago to be allowed to inspect a portion of the Corporation intercepting sewer. Permission was given, and the representatives of the Canal Company was accompanied by a Corporation official, who found that there was a considerable amount of silt in the sewer. Steps were immediately taken to deal with the matter of which the Committee had before been perfectly ignorant. At the same time he wished it to be plainly understood that not one particle of the silt had ever gone into the canal or the docks. Recently he received an imperious letter from the Ship Canal Company demanding to be allowed to make inspections of the sewer whenever they liked. He sent them in reply a decisive no, and he would do so again if the request was repeated.

Correspondence.

*. We do not hold ourselves responsible for the opinions expressed by our correspondents.

PETROLEUM BRIQUETTES.

(To the Editor of the Chemical Trade Journal.)

SIR,—We have just seen the article contained in the issue of your valuable paper for 13th January last, entitled "Petroleum Briquettes," in which the invention of a process for the conversion of petroleum into solid briquettes for use as a fuel for marine purposes, &c., is attributed to a "Signor Maestrecchi" of the "Italian Navy," and we beg to state that we claim to be the first and true inventors of the process in question, which is identical with that for which we hold patents for many countries, France and Italy included.

In support of our statement we may mention that through having had our attention drawn to a notice of "Signor Maestrecchi's" alleged invention recently contained in a shipping paper, we have ascertained that this gentleman claims to have discovered the process upon 11th May, 1891, and that his patent for France is dated 3rd May, 1892, whereas we had not only discovered the process, but had applied for letters patent by 12th March, 1891.

Trusting that, with your usual courtesy, you will insert this explanation in your *Journal*,

London, July 30th, 1894. We are, etc.,
W. S. & W. F. S. CHENHALL.

ANSWERS TO CORRESPONDENTS.

E. W. W.—Many thanks.

W. H. A.—Your letter and the numbers crossed.

T. G. Y.—Thanks for letter.

A. F. AND E. CO.—It has been sent.

E. A. R.—Your query is indefinite. You seem to want something to clean out what you have been advised to use as a cleansing agent *per se*. What have the bottles had in before you tried to cleanse them? Acids or alkalies almost invariably answer the purpose, followed by cold water rinsing and drying with warm air or alcohol. We cannot advise you more definitely however, unless you care to send us fuller particulars as to what it is you wish to accomplish.

NOTES ON THE REFINING OF CARBON BISULPHIDE.

BY J. FARBAKY.

RAW carbon bisulphide is contaminated with from 6 to 10% of dissolved sulphur, and in consequence of this and other impurities has a brownish colour and a penetrating odour. The redistillation in order to purify the chemical has since 1888 been performed successfully by a continuous process. For this purpose an iron vessel is used having a circular cross section and provided with a wooden jacket. It is 185 c.m. high and 180 c.m. broad. The space between the wooden jacket and the iron still is filled with ashes to the exclusion of the air. A temperature of 48°C is required for the distillation, and is produced by the introduction of steam between a double base, or bottom.

The vapour of the carbon bisulphide passes off through a tube and is condensed in a row of four cooling tubes, which are surrounded by water. The carbon bisulphide is collected beneath water. The filling and clearing of the vessel may be accomplished by means of a small aperture at the top of the vessel. In charging, 40 to 50 hectolitres of raw carbon bisulphide are placed into the vessel, and steam used at about 0.3 to 0.5 atmospheric tension. About two hours after, the distillation commences, which is very strongly evidenced by the heat of the exit tube, while a hissing is heard in the condenser, sulphuretted hydrogen being also liberated at the earliest stage of the operation. The refining process lasts about six hours. The residual sulphur in the vessel must be cleared out with a wooden scoop. It is in this operation that the workman is exposed to the escaping vapours of carbon bisulphide, and is thereby very seriously affected. The destructive reaction of carbon bisulphide upon the organism is indeed so considerable that, as Cloez states, as small a volume as 5 per cent. of the vapour in the air is sufficient to kill the smaller mammalia, as well as birds and reptiles. The workman suffers from headache, vomiting, and has irresistible fits of weeping, soon feeling violent pains in his limbs, chiefly in the legs, and finally all his bodily and mental powers are paralysed or much impaired, and loss of memory is noticed to ensue. It has happened even that the workman lapses into idiocy.

It has been tried to expel the CS₂ and other substances present out of the residual sulphur by raising its temperature considerably. But as the vessel can only stand a pressure of half an atmosphere, the difficulty is overcome in another manner. The vessel is filled three parts with water and steam led directly into the liquid. The water is brought up to boiling, and the carbon bisulphide is thus distilled over. The heating occupies about 20 hours, whereupon the water can be drawn off and the sulphur removed without any danger. This residual sulphur is used up again in the raw production of the carbon bisulphide.

The refined carbon bisulphide is removed 15 hk. at a time and stored up under water in sheet-iron cylinders, holding about 30 to 80 hk. The supply is executed in 500 or 100 kilogram lots, in wrought-iron and air-tight cylinders. For the first quantities a space of about 12 litres, for the latter 2.5 litres, to allow for the expansion of the carbon bisulphide.

The total production of the refined carbon bi-sulphide is taken over by the Hungarian Agricultural Secretary of State for 18 florins per hectolitre and distributed amongst the schools for vine culture and other economical associations as a destructive agent against phylloxera.

The cost of production is from two to three florins (four to six shillings) per hectolitre. Up to 1889 only one of the two retorts available was used at a time, but since the enlargement of the works the process is generally carried on in three retorts, out of four simultaneously.

The annual production of raw CS₂, with one oven, is 1,102 hectolitres. The total production per annum, can therefore be estimated at 4 × 1102 = 4408 raw—or taking the pure at 80%—at 3,500 hectolitres, which corresponds approximately to the present consumption in Hungary.

The production of the raw CS₂ is a very complicated and dangerous process, so much so that at first the utmost difficulty was experienced to obtain any workmen to perform the operation. Besides the use explained in this article, it is also used for the extraction of oils from seeds, etc., solution of resinous substances, alkaloids, phosphorus, and sulphur.—*Zeit. f. Angw. Chem.*

THE NEW AUTOMATIC STEERING COMPASS.

IN the new electric steering compass, invented by Lieutenant Bersier, of the French Navy, the needle of the compass actuates the rudder by means of an electric current, and thus precludes the possibility of any error on the part of a living steersman from fatigue or confusion. The difficulty of constructing such a compass hitherto has been owing partly to the heaving of the ship, and partly to the difficulty of causing the delicate needle or card to act on the steering-gear without impeding its motion. In Lord Kelvin's compass, for example, the card is merely a skeleton disc of paper, silk thread, and aluminium with eight parallel wires of magnetized steel underneath, and it rests freely on a point or pivot of iridium or other hard metal by means of a cup of ruby or sapphire. The slightest contact with another body would disturb its motions in the magnetic field of the earth. M. Bersier gets rid of all contact by making the current from a Ruhmkorff coil spark from a metal point on the edge of the card to semi-circular plates of metal insulated from each other and from the sides of the compass bowl in which they are fixed. The coil is excited by a battery if there is no electric lighting installation on the vessels; and a current of two to three amperes is sufficient. A wire from the coil leads to the pivot of the card and the cup over it, from which a light wire along the radius of the card corresponding to "North" conveys the current; and according as the ship is to the right or left of the course a spark three centimetres long passes to the right or left plate in the bowl and excites one or other of two electro-magnets forming the circuit of a small electro-motor of 150-watt power. This motor, turning to the left or right, works the steering motor like the hands of a man. The mechanism can be readily applied to any existing steering gear. The new compass has been tried in the French Squadron for several months past, and is said to have succeeded perfectly well. The compass card seems quite indifferent to the spark, probably because the current of the coil is alternating and of low strength. Moreover, certain precautions are taken in producing the spark, and the coil and electro-magnets are at some distance, about five metres, from the compass. The new compass also registers all variations of course, if desired, the spark piercing a band of paper which is moved by clockwork up the bowl. Moreover, by a simple arrangement of Geissler tubes, steering orders can be automatically transmitted, and the course changed from any part of the ship. In practice the compass enables a course to be steered to a fraction of a degree—that is to say, with much greater precision than by hand, and it is claimed that it is specially suitable for passenger steamers such as the Atlantic liners, as it would enable them to travel in a straighter line, thus saving both time and money. It also permits the vessel to be steered from the masthead compass.

Parliamentary Jottings.

SELECT COMMITTEES.

FOOD PRODUCTS ADULTERATION.

PROFESSOR LONG, of the Central Chamber of Agriculture, recalled, was further examined. He recommended that there should be in force an effective branding of foreign cheese. Printed marks could be, and had, indeed, been, effaced after the importation into England. There was a great deal of cheese in England in the manufacture of which margarine was used. Witness was closely questioned by Mr. Barton and Mr. Kilbride as to the presence of an unusual quantity of water in Irish butter, and as to the inferior character of some Irish butters, and he was asked to suggest something for improving the quality. He said that he attributed the inferiority to the absence of spring water and proper utensils, and he suggested that public creameries should be established in Ireland, to which farmers with a small number of cows could send their cows, in order to secure uniformity.

Mr. Middleton, a large dairy farmer in Yorkshire, gave evidence. He thought the best way to regulate the use of margarine was to compel it to be sold without colouring matter. In this way the price of pure butter would be raised, and the price of margarine lowered. Travelling inspectors should be appointed to see that local inspectors did their duty. He desired to see the inspection of butter and milk in hotels as far as possible, and certainly in restaurants, and would also have all margarine factories and wholesale stores open to inspection. In addition, he would have all shops where milk was sold regularly inspected, and all sellers, carriers, or hawkers of milk should, if not licensed, be registered. It was very desirable to have a standard for milk; and what he suggested was 3 per cent. of fat and 8.50 per cent. of solids, not fat. Along with such standard he would give an "appeal to the cow," and, failing such an appeal, would lower the standard somewhat. There was a difficulty about milk analysis, because the evening milk was always much richer than the morning milk. He attributed to that fact the high average that was brought out in London. The disposition was to fix too high a standard. He mentioned some interesting experiments conducted on 40 shorthorn cows of his own, whose milk on a morning in March last showed 2.86 per cent. of fat; in the evening of the same day, 3.68; and again on a date during the present month, 3.25 per cent. of fat in the morning, and in the afternoon 4.57. Guernsey cows, fed on the same food, gave on the same day 4.57 per cent. of fat in the morning, and 5.30 in the evening. Milk for the London market was highly coloured, because the Londoner did not think his milk genuine unless it was so coloured. Mr. Banister, from the Laboratory at Somerset House, recalled, gave it as his opinion that margarine was quite as nutritious as butter. With regard to beer, the prevalent idea that it was adulterated with all sorts of noxious articles was altogether false, because during 20 years' experience he had not come across a single case of noxious adulteration of beer. The chairman recommended re-appointment next session.

THE PETROLEUM ACTS INQUIRY.

The examination of Mr. Ernest Spencer, chief officer of the public control department of the London County Council, was continued. The witness stated that since the last meeting (*vide C.T.J.*, 375, p. 49), he had made experiments to ascertain the increasing temperatures of petroleum oils in lamps with and without safety wick tubes. On the first day the tests were made with Scottish oil; on the second with Russian oil, and on the third with American oil. The three lamps used were of the same size and character, with reservoirs of about a quart capacity, duplex burners, and self-extinguishing apparatus. In the first case the oil used was Young's paraffin oil, purchased at Blackfriars at 8d. per gallon, with a flash-point of 110, Abel test. The lamps were lit at eleven o'clock a.m. and extinguished at 4 p.m. The temperature of the room was at the commencement 66 degs. Fahrenheit, and at the termination it was 75 degs. No. 1 lamp was one of good construction, with a glass reservoir and without a wick tube. The temperature of the oil on lighting was 65 degs., and after burning five hours it was 81 degs. No. 2 was a lamp of the same construction, except that it had a metal reservoir. After burning five hours the temperature of the oil was 87 degs. No. 3 lamp had a metal reservoir with a wick tube, and the oil, after burning five hours, had a temperature of 99 degs. The temperature in the case of the Russian oil, which began at 71 degs., was, after five hours' burning, 78. The American oil, with a flash point of 82 degs., was at the commencement 70 degs. F., and after five hours' burning it stood at 75 degs. He attached no very great importance to these experiments, for the reason that if they had a safety lamp there could be no danger present, no matter what the temperature of the oil was. He regarded a safety lamp as one with a strong metal reservoir, and a metallic tube reaching close to the bottom of the reservoir.

In examination by Mr. Jacks, the witness said he adhered to the opinion which he expressed in his original examination that accidents arising from lamps were not the result of the flash-point of the oil, but of the imperfect structure of the lamps. Mr. Jacks asked if it would not be possible to construct a lamp with a glass reservoir covered with leather with a slit in it, his point being that metal was a dangerous material with which to make a reservoir, for the reason that it could not be ascertained how the oil was getting down, and very often servants took a candle to see how much oil was left in. The witness admitted that in such a case, if the lamp was burning for some time, there would be danger of a flash, and of an accident caused by the tendency in such a case to drop the lamp. He considered that petroleum oil or spirit became dangerous when under circumstances of ordinary use it flashed at the temperature of the atmosphere for the time being. Mr. Jacks: What would you say to the suggestion that the oil with a 72 degs. flashing point is dangerous in any lamp, and the oil with 100 degs. flashing point is always safe? A.: I disagree with both statements. I have not heard, except as to the War Office, that no oil was accepted by the Government under 100 to 105 degs. F. As to light houses, the conditions of lamps there were, so far as he knew, in no way comparable to those for domestic use. Witness added that he had no hesitation in saying that he did not think there was any risk at all in burning petroleum oil, such as was sold every day, in properly constructed lamps.

By Mr. Isaacson: All his knowledge tended to show the great danger of relying for safety on an automatic extinguishing apparatus.

By Captain Hope: No doubt the incautious turning down of a wick, or the flame being blown upon, might conduce to an accident, but in the cases of which he had heard there had been no metallic tube.

The Chairman suggested to the witness that before the Committee met again next Session he should make a series of experiments to find out whether when the temperature of the oil was raised above the flash-point the overturning of a safety lamp would produce flame. The witness undertook to make the experiments. Sir H. Roscoe said there must be many experiments to obtain a satisfactory result. He objected to the use of the expression "safety lamp" until it was determined what a safety lamp was, otherwise the public might be deceived.

Mr. John Young, general manager of the Linlithgow Oil Company, was next called. In answer to the Chairman, he said he was the representative of that Company at the meeting of the Scottish Mineral Oil Association. One-third of the quantity produced by the Scottish Companies was lamp oil, and the remainder was divided into spirit or naphtha, gas-making, lubricating oils, and solid paraffin. In addition to that there were large quantities of sulphate of ammonia, averaging about 50lb. for every ton of shale distilled. The oil trade had been depressed more or less since 1887. It was particularly depressed in that year. The depression was primarily due to the introduction of Russian petroleum into the European markets. Prior to that the business had been almost exclusively in the hands of the Americans. The depression of 1887 was not entirely due to Russian competition, but was due, probably, to a greater extent to the larger quantity of solid paraffin which was being made in America. They were able there, by improved methods, to extract solid paraffin from crude petroleum. That came over to this country. It was on the solid petroleum that the Scottish manufacturers relied for their profits, and not on their burning oil. In 1887 such enormous quantities came over here that the Scottish producers were compelled to follow, and in that year the value, which about a year before had been 3d. per lb., was reduced to 1 3/4d. This looked at the time as if it were going to prove disastrous to the Scottish trade. Fortunately, it did not turn out to be so. They reconstituted the Scottish Mineral Oil Association, and the object of their action was to minimise competition among themselves. They combined together and fixed minimum prices. They also entered into negotiations at a later stage with the American producers to restrict the output of scale in Scotland, and the export of scale from America. Q.—You formed really against the public? A.—We certainly fixed a minimum price with regard to burning oil, but not with the Americans, with whom our agreement was only with regard to paraffin oil. Q.—But you agreed to limit the output, and raised the price? A.—Well, the quantity was in excess of what the public required. Q.—But you limited the output and raised the price? A.—We limited the quantity for the purpose of raising the price. By economies at the works and by improved machinery we were able to minimise the loss and to recoup ourselves. Q.—Then the result of the competition was in every way a gain to the public? A.—It was certainly, as it always is. Q.—So that, when you were driven to it, you improved your retorts and other machinery, and were able thereby to minimise your loss. A.—Certainly. He was appointed one of the representatives of Scotland at the Conference with Colonel Majendie with reference to the Bill of 1891. The Scottish delegates did not raise the question of the flash-point, because they were led to understand that, should they propose a general raising of the flash point of lamp oils, the negotiations would come to an end.

By Mr. Jacks.—It was merely an understanding. There was no written agreement.

Mr. Jacks : And if the American representative denies that, there is no proof?

The Chairman : We must really wait to get that when the American representative comes before us.

Witness, in further answer to the Chairman, said that in their conference with Colonel Majendie they wanted to get Scotland left out of the provisions of the Bill of 1891. They pointed out that none of the products made in Scotland, except naphtha, for which special regulations existed, could be considered dangerous; that while fires had taken place in oilworks, they were few in number, and had not been serious; that scarcely a single accident had ever occurred in the transit of oil either by sea or land, and that no explosion could be traced to the use of Scottish oil. But while they failed to get Scotland exempted, they succeeded in getting Colonel Majendie to meet them half way, and they obtained concessions for the exclusion of oils of '84 specific gravity, and 150 degs. Fahrenheit flash-point, and some modification regarding operations at the works. As to raising the flash-point, their belief had all along been that the one thing needful was to insist upon safe oil being supplied to buyers, and that oil was perfectly safe when ordinary precautions were taken if it had a flash-point considerably above the temperature of the atmosphere, or the temperature of the lamp in which the oil was burned. By safe oil he meant oil which flashed above 100 degs. Fahrenheit close test. There was a consensus of opinion in Scotland that oil which flashed at 73 degs. was a dangerous oil, and should be excluded from the market. So convinced, had the manufacturers been of this, that many years ago all the companies came under what he might call a self-denying obligation not to send out anything under 100 degs. Fahrenheit.

The Chairman : Do you suggest that the Scottish companies could supply the whole market? A.—By no means. They have not been able to do so. Q.—Would you exclude American and Russian oils? A.—Certainly not. But I would exclude all oils that flash below 100 degs., wherever they came from. What would be the effect on the price of oil? A.—It would be comparatively nil. I cannot see how there can be any increase in the cost of the production of petroleum oil with 100 flash-point. The main effect would be in a decrease of the quality of the oil which the Americans would be able to make. It was found in a series of experiments that for every 1 per cent. of naphtha distilled from American petroleum the flash-point was raised 3 degs. in the early stages, and 4 degs. in the later. Take petroleum with a specific gravity of 0.798 and a flash-point of 75 degs. F., and distilling off 5 per cent. of naphtha, left the oil with a specific gravity of .803 degs. and a flash of 94 by close test.—The Chairman : Without increasing the cost? A.—Without increasing it at all.

Sir H. Roscoe : Is the price of naphtha as low as that of burning oil? A.—I think they are about the same.

Replying to further questions from the chair, the witness said he agreed that it was a great advantage to the poor consumer to get oil cheap, and if he believed the effect of raising the flash-point to 100 would have the effect of bringing oil within a prohibitive price, he would rather have it as it was. He had heard Mr. Spencer's statement to the effect that the danger from the use of oil arose from the improperly constructed lamps rather than from the flash-point, and he entirely disagreed with it. He could furnish the Committee with the results of experiments at the Linlithgow works with burning oils—Scottish, American, and Russian—in the common lamp in use.

In reply to Sir H. Roscoe, the witness said he had not with him the details showing what the temperature was when the lamps were lit, though he had the results of the temperature after they had been burning for about four hours.

Sir H. Roscoe thought it would be better not to examine witness further on this point unless he could show the initial temperatures.

Mr. Jacks took the same view, and the room having been cleared, it was decided not to proceed further with Mr. Young's examination.

The Committee then closed for the Session, and subsequently Mr. Mandella presented a report of the evidence to the House with a recommendation that the Committee should be re-appointed.

THE CHEMICAL INDUSTRY OF BILBAO.—Paper mills exist in the provinces of Biscay and Guipuzcoa, and two new mills have been established near Bilbao, which are said to be the largest in Spain. Last year they used 2,700 tons of wood pulp. The most important chemical works are those of Messrs. Errazquin and Co., who manufacture sulphuric acid, which is largely used in the refining of petroleum which is carried on at the works of Messrs. Gustubay and Fourcade, and the manufacture of dynamite and tin plate. Messrs. Errazquin also makes agricultural chemicals, such as sulphates of copper and iron, artificial manure, and, in addition, turn out nitric and hydrochloric acid, nitrate of ammonia, salt cake, glycerine and alum. Messrs. Burt, Boulton and Haywood also have coal-tar dye works at Bilbao.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending July 14th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test :—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16.52	9.95	0.42	Nil.
South Metropolitan Gas Co.	6	16.93	9.58	0.76	Nil.
Commercial Gas Co.	2	16.65	7.5	0.55	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cb. ft. of gas on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended July 12th, 1894, has averaged 14.15 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet :—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	June 1894.	July 1894.			Weight.	Volume.
Meadow Lane....	22, 29.	5, 10.	14.14	0.52	48.90	.06
New Wortley	20, 28.	3, 11.	15.83	1.39	48.90	.06
York Street	21, 27.	7, 12.	9.53	1.23	57.05	.07
Average at Works ..	..	..	14.15	1.01	48.90	.06
Average at East Parade	..	..	14.00	1.34	48.90	.06

During the month the average illuminating power of the Leeds Gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour) :—Standard argand, 24 holes, 18.8; standard batswing, 19.5; Sugg's illuminating power meter, 18.9.

MORE FATAL PARAFFIN LAMP ACCIDENTS.—An inquiry was held at Manchester, last Monday, concerning the death of Catherine Glazer, 48 years of age, and lately living in Young-street, Quay-street. On Saturday night, the 21st inst., the deceased was pulling down the window blind in the bedroom, when she upset the table, upon which was standing a lighted paraffin lamp. Her clothing caught fire, and she was conveyed to the Royal Infirmary, where she died. The jury returned a verdict of accidental death. On Saturday last, a shocking lamp accident occurred in Nottingham. A married woman named Priscilla James, 35 years old, was trying to blow out a paraffin lamp when it exploded. She was enveloped in flames, and having fastened the doors of the house she could not get out. Her cries attracted a detective who was passing, but when he and another man had succeeded in breaking open the door all her clothing was burned off her body. She was taken to the infirmary, where she died in a few hours.

MANGANESE ORE IN VIRGINIA.—Some very fine manganese ore has recently been found on the Glenmore property, about two miles from White Sulphur Springs, Va., and the deposit or series of deposits has been traced on the surface outcrop for nearly two miles. The first carload of the ore taken out was shipped to the Carnegie Steel Company, Pittsburg, and was settled for on the following analysis : Iron, 0.200 per cent.; manganese, 49.964 per cent. As no deduction was made for phosphorus, it is safe to assume it to have been below the Bessemer limit. Other analyses of samples of this ore give an average of about 0.1 per cent. phosphorus and from 1 per cent. to 3 per cent. silica; the manganese going up to 55 per cent. and iron sometimes down to a trace. This ore is pure enough for chemical manufactures, and as the amount of it seems to be very great, it promises to be a very important find.—*Engineering and Mining Journal.*

Trade Notes.

ERECTING SULPHUR BURNERS.—The Hinckley and Egery Iron Company, Bangor, Me., U.S.A., is building four large sulphur burners for the Burgess Sulphite Fiber Company, of Berlin Falls.

DUTCH MADDER.—Messrs. Bunge and Co., of Rotterdam, report that the market remains very quiet, with prices in buyers' favour. Quotations are very low and speculative. The prospects for the new crop are not very satisfactory, as the plants have suffered much on account of the cold nights during May and June.

SUFFOCATED BY SEWER GAS.—Two men named Power and Hadley, employed by the St. Helens Corporation, were suffocated on Monday, by a sudden rush of sewer gas whilst engaged in clearing out the main intercepting sewer. Their bodies were recovered an hour after the accident. Two other men had a narrow escape of being rendered unconscious, but were rescued alive.

OIL GAS SUPPLANTS ELECTRICITY.—The directors of the Midland Railway Company have found electricity too costly, and they now intend to erect in Sheffield works for the manufacture of oil gas. The oil is distilled from shale in Scotland, and the gas made from it is capable of compression, which ordinary gas is not. The advantage is that a large quantity of oil gas can be stored for use in the train.

ILLICIT DISTILLING ON DEESIDE.—John Gordon and James Gordon, farmers, Loinveg, parish of Crathie and Braemar, were convicted in Aberdeen Justice of Peace Court, recently, of using an illicit still for the manufacture of whisky. The defence was that the still belonged to accused's father, and had never been used by them. They were fined £5 each, with the alternative of thirty days' imprisonment.

WARNING TO OILWORKERS.—In the Small Debt Court at Linlithgow, last week, before Sheriff Melville, an action of importance to men employed in oilworks was heard. John Ross and Company, Philpstoun Oilworks, sued Michael Callacher, Joseph Callacher, and Robert Ross, retortmen, for £5 each, in name of damages in consequence of defendants having deserted their employment without giving notice, in terms of agreement. The men failed to appear, and the Sheriff gave decree as craved. It was explained that the action was raised as a warning, and also as a deterrent to other workmen.

Market Reports.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, inactive: Scotch warrants closed at 42s., Middlesbrough 35s. 4d. cash, and hematite 43s. 9d. Copper, firmer: Chili bars, G.O.B.'s and G.M.B.'s, closed at £38. 5s. to £38. 10s. cash, and £38. 13s. 9d. to £38. 18s. 9d. three months. Tin, weak: Straits closed at £65. 10s. to £66. cash, and £66. to £66. 10s. three months; Australian, £66.; English ingots, £69. Lead, steady: Spanish, £9. 10s. to £9. 11s. 3d.; English, £9. 12s. 6d. to £9. 15s. Silesian Spelter, ordinary, £15. 12s. 6d. Nickel, 1s. 6d. Antimony, £32. Quicksilver: first hands, £6.; second hands, £5. 17s. 6d. *Copper shares*, firm: Cape, 1 $\frac{1}{16}$ to 1 $\frac{3}{16}$; Copiapo, 1 $\frac{1}{16}$ to 1 $\frac{3}{16}$; Libiola, 3 to 3 $\frac{1}{4}$; Mason and Barry, 2 $\frac{1}{2}$ to 2 $\frac{3}{4}$; Rio Tinto, 12 $\frac{1}{2}$ to 12 $\frac{3}{4}$; Tharsis, 4 $\frac{1}{2}$ to 4 $\frac{3}{4}$.

WOLVERHAMPTON, WEDNESDAY.—The volume of business done at to-day's market compares favourably with that of the past month. For manufactured iron the inquiry is better, but the prices on offer keep low. Common bars were quoted £5. 10s.; merchant sections, £6. to £6. 5s.; hoops, £6. 10s., nominal. Galvanised sheets of 24 gauge £9. 12s. 6d., and plain doubles £6. 10s. Pig iron rates firm: Staffordshire cinder sorts, 38s. 6d. upwards; medium, 41s.; and best, 55s. upwards. Steel animated.

GLASGOW, WEDNESDAY.—Market quiet, with small business. Scotch done at 42s. cash, also at 42s. 2d. one month; closing with buyers at 42s. cash, sellers ask 42d. more. Cleveland closes with buyers at 35s. 4d. cash, sellers ask 35s. 5d. Cumberland hematite closes with buyers at 43s. 9d. cash, sellers ask 43s. 10d. Middlesbrough hematite closes with buyers at 42s. 6d. cash, sellers ask 42s. 7d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil continues steady, and a fair amount of business passing: Lagos is worth from £20. 15s. to £21. per ton, Saltpond £19. 5s., Accra £19. 10s., Cameroon £19. 15s., Bonny £20., all *transit*. Olive is quiet at £28. 10s. to £36. per tun. Linseed is rather

firmer, prices for Liverpool makes in export casks being 21s. 9d. to 22s. 6d. per cwt. Cottonseed is inclined to be steadier again, owing to scarcity: present quotation remains at 20s. 6d. to 21s. per cwt., however. Castor oil is quiet, but steady: good seconds Calcutta is without change in price for quay or ex store. First pressure French is easier at 2d. to 2 $\frac{1}{2}$ d. per lb. Tallow is quiet, though prices are inclined to favour buyers. Resin is only in small demand at 3s. 9d. for common, medium 4s. 3d. to 6s., and fine 7s. to 8s. 6d. per cwt., in accordance with last week's reported tendency. Spirits of turpentine is steady at a reduction of 3d., there being a fairly good business passing at 22s. 6d. per cwt. Petroleum is steady, but there is not much doing, even with the reduction: American, 4d. to 5 $\frac{1}{4}$ d.; Russian refined is quoted 3 $\frac{1}{2}$ d. to 3 $\frac{3}{4}$ d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a moderate amount of business being done, but there is no tendency towards any improvement in values. Caustic soda is moving more freely for export at current rates, which are ruling as for some time past, viz.:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d. per ton, 10-ton lots and upwards. In ammonia alkali there is no improvement, and price is still at £3. 2s. 6d. per ton, bags, makers' works. For Leblanc soda ash quotations are 1d. to 1 $\frac{1}{2}$ d. per degree, f.o.b. Soda crystals continue to sell at low prices, and bicarbonate has also a weaker tendency. Sulphur £3. 12s. 6d., f.o.r. works. For chlorate of potash the market is weaker, spot prices being 6 $\frac{1}{4}$ d., chlorate of soda (resellers) at 7 $\frac{1}{4}$ d. per lb. Bleaching powder unchanged at £7. 10s., f.o.r. makers' works, and £8. f.o.b. Sulphate of copper £14. 5s. per ton, f.o.b. Demand continues fairly active for potash, caustic and carbonate, and prices are without change. Acetates of lime remain stationary meantime, but with curtailment in supply, the tendency to lower prices has been checked. Acetate of soda slightly lower in price, but with little demand. Other acetates flat. Trade in carbolic acid is still disappointing, prices are quoted meantime without change, values for all grades being unprecedentedly low for the season of the year. Ammonia salts are firm in price. Nitrate of soda has a lower tendency. White powdered arsenic £14. nett, f.o.r. Garston. Prussiate of potash still in active request at 10 $\frac{1}{2}$ d. per lb. Oxalic acid 3 $\frac{3}{4}$ d. per lb.

TAR AND AMMONIA PRODUCTS.

Benzol keeps much about the same, with 90's at 11d. to 11 $\frac{1}{2}$ d. In carbolic acid, 60% crude is easier at 1s. 7 $\frac{1}{2}$ d., but crystals (40%) are a fraction firmer. Crude naphtha remains unaltered, as does solvent also. Pitch continues firm at 32s. 6d. to 33s., f.o.b. East Coast.

Sulphate of ammonia is practically without improvement, though the tone of the market is rather better. Matters seem likely to stand still now over the holiday, after which a change for the better is possible. Beckton value is £13. 15s., London outside makes £13. 15s., Liverpool and Hull £13. 15s. For Leith £13. 12s. 6d. to £13. 13s. 9d. is nearest quotation. Nitrate is steady.

REPORT ON MANURE MATERIAL.

During the week the market has been very quiet in all positions, but without material alteration in prices. Florida rock, 75/80%, is still quoted 8 $\frac{1}{2}$ d. per unit, c.i.f. to the Baltic, 8d. c.i.f. to good Continental ports, and 7 $\frac{3}{4}$ d. to good United Kingdom ports would be business. There are sellers of South Carolina River rock at 6 $\frac{1}{2}$ d. per unit, and a fraction less would possibly be business. Peace River is quoted 6 $\frac{3}{4}$ d. per unit, in cargoes, c.i.f. to United Kingdom. There is nothing doing in River Plate bones, but there are sellers of large cargoes for shipment at £4. 12s. 6d., and this price would be taken for a smaller one near at hand. For autumn shipment Bombay bone meal is quoted £4. 15s. per ton, delivered Liverpool, Glasgow, or Hull, but it is reported that less has been accepted. Common grinding bone are in request at Liverpool at £4. 5s. to £4. 7s. 6d. per ton, ex quay

and something more would be paid for really good parcels for charring purposes. Owing to arrivals nitrate of soda is weaker on spot, and there are now sellers of fine quality at 8s. 9d. The forward position is firm. Due at port of call cargoes have been sold at 8s. 9d. to 8s. 10½d. per cwt., according to size and test, and for later shipment 8s. 10½d. to 9s. 3d. per cwt., according to position and quality, would have to be paid. There is nothing to report in miscellaneous material.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, July 16th, 1894, state:—

Chili Charters for the past fortnight are cabled as 1,400 tons, making the total since 31st December last 11,950 tons, against 11,100 tons same time last year. Since our last, the market for G.M.B.'s has been irregular, and about 6,000 tons sold at from £39. 6s. 3d. cash and £39. 13s. 9d. three months, down to £38. 8s. 9d. and £38. 16s. 3d., respectively, closing quiet at £38. 16s. 3d. cash and £39. 3s. 9d. three months. The *s. Antisana* has arrived at Swansea with about 1,150 tons copper ore (Copiapo Mining Co.) for division amongst the smelters. The total stocks in Liverpool, Swansea, London, and Havre are 46,325 tons, against 45,772 tons on the 1st inst., showing an increase of 553 tons for the fortnight. The stocks include about 1,400 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 51,543 tons, against 49,964 tons on the 1st inst., showing an increase of 1,579 tons. The stock of English G.M.B.'s in Liverpool remains at 2 tons. Refined and manufactured sorts are steady. Quotations being:—Tough cake, £41. to £41. 10s.; best select, £41. 10s. to £42.; Indian sheets, £46. 10s.; strong sheets, £49. to £49. 10s.; and yellow metal sheets, 4½d. per lb.

For the first time on record we have no sales of furnace material to report during the past fortnight.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue quiet, with very little alteration. Ash has advanced slightly owing to a somewhat better demand. Other products unaltered.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett; soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 10s. 6d. per ton, f.o.b. Tees.

COALS are quiet, but as some of the local collieries are sending considerable quantities to Scotland there is full work. Best Northumbrian steam 10s. 9d. and 11s. per ton; seconds ditto, 9s. 6d. and 10s. per ton; small steam plentiful, 4s. 6d. and 5s. per ton; gas coals in better demand, 7s. 3d. and 7s. 9d. per ton; bunker coals, 7s. and 7s. 3d. per ton; coke steady, 13s. 6d. and 14s. 6d. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Mineral oils and paraffins are in the main unchanged, and therefore still idle, but there is an exception in certain lubricating and gas-making oils, the call for which has been improving perceptibly, and in spite of the closing down of so many of the factories. Probably a good proportion of the increased orders are speculative in character. Price of burning oil for the coming season will probably be fixed this week, and very likely on the basis of a drop of a farthing a gallon, as already stated here.

Sulphate of ammonia is very inactive, and has made a further fall during the past week, though not at all a very marked one. Holders evidently believe in the early resumption of a recuperative tone. Spot, Leith, price cannot at the moment be stated with more precision than £13. 12s. 6d. to £13. 15s.

In general chemicals, with the exception of a fall of 20s. in borax and boracic acid, there is no change to note. The recent tightening of prices in the scarcer articles is maintained, but the others continue dull.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £13. 12s. 6d. to £13. 15s., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 10s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1½d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 5d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 86½° £3. 10s., 88½° £4. to £5., and 89/89½° £4. to £5. 10s. Week's imports of raw sugar at Greenock were nil.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—During the week a few good inquiries have been knocking about, but whether any of them will find a home here it is difficult to say. All makers appear to be grumbling about the dullness of trade, July being about the worst month of the year in the oil trade. There has been an import of linseed during the week of 17,144 qrs.; this, coupled with a liberal import last week and a slackness in demand, keeps prices down. Of cottonseed there has been an import of 2,130 tons, and of rapeseed there has been no imports. Linseed oil firm at 19s. 6d. spot naked; August worth 19s. 3d., and September-December, or January-April, 18s. 4½d.; casks 17s. 6d., and bails 22s. 6d. per ton extra; refined and boiled from £1. to £2. per ton extra. Exports for the week, 1,760 cwt. Refined cotton oil steady at 18s. 1½d. naked spot or August-October; November-April, 17s. 4½d. to 17s. 6d.; crude, 16s. 9d. naked spot. Export of refined for the week, 3,300 cwt. Rape oil remains flat and not much in request. Olive oil from £31 per tun. Castor oil for first pressure from 2¼d. per lb. Cod oil very quiet from £17. to £20. per ton. Sod oil remains quiet. Spirits of turpentine, 22s. 3d. Rosin oil, £6. 10s. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed Cakes: A quiet demand, but prices are firm; best makes, 95% pure, £6. 10s.; Russians, £6. 10s.; oil cakes, £5. 10s. per ton. Cotton cakes: A somewhat firmer feeling, but the demand is quiet; best makes, £4. to £4. 2s. 6d.; seconds, £3. 17s. 6d. Rape cakes and feeding cakes unchanged.

PAINTS.—The position of this trade continues to make satisfactory progress, with prices about the same. Oxide of iron, dry, from £7. to £18. per ton. Venetian red, dry, from £4. Blue black, £4. 5s. Mineral black, £4. Yellow ochre, dry, from £3. 15s. per ton; these mineral colours include casks and are f.o.b. the principal ports. Oxide of zinc paint from 22s. 6d. White and red leads unchanged. Emerald green from 9d. per lb. dry. Ready mixed paints in assorted tins, £24. per ton. Common black varnish £5. 10s. per ton.

New Companies.

New Coal Brick Syndicate, Limited. CAPITAL, £50,000., in shares of £1. each. This company has been formed to take over the Coal Brick Company, Limited, and to manufacture briquettes and briquette making machines, etc.

Tidman and Son, Limited. CAPITAL, £20,000., in £10. shares. This company has been formed to take over the business of Messrs. Tidman and Son, at Wapping, and to trade as manufacturers of soap, chemicals, and medicines.

Proprietary Gold Recovery Company, Limited. CAPITAL, £50,000., in shares of £1. each. This company has been formed to purchase tailings of gold and silver ores, and to recover the precious metals therefrom. The subscribers to the memorandum of association are:—F. W. Faulkner, Chilton, Wealdstone, gentleman; F. S. Hallan, Mapledene, South Norwood Park, S.E., gentleman; W. J. Messer, 26, Lonsdale-square, Barnsbury, gentleman; E. J. Wright, 36, St. John's Villas, Holloway, gentleman; E. T. Church, 41, Copplestone-road, S.E., clerk; E. T. Botwright, 115, Osborne-road, E., accountant; G. A. J. Smallman, 48, Langham-road, N., gentleman.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Apparatus for Extracting Suint, etc., from Wool. E. Richard-Lagerie. 13,672. July 16.
Furnaces for Extracting Potash from Sheep's Wool Grease. E. Richard-Lagerie. 13,677. July 16.
Chemical Extraction of Copper, Gold, and Silver from Ores, and Recovering the Chemicals used in the Extraction. J. P. V. Ploeg. 13,683. July 16.
Manufacturing Sodium-Persulphate and Disinfecting, etc., by means of Persulphates. L. Ledener. 13,697. July 16.
Obtaining Hydrogen and Oxygen Gases by Electrolysis. C. J. Yarnold. 13,836. July 18.

Improvements in Retorts for making Gas from Oil, Tar, etc. A. Scott and P. McLean. 13,841. July 18.
Treating Nickeliferous Iron Ores. W. T. Gibbs. 13,851. July 18.
Apparatus for the Direct Manufacture of Alkaline Silicates and Glass, etc. G. Bamberg. 14,006. July 20.
Improvements in Tanning. J. Y. Johnson. 14,012. July 20.
Improvements in Condensing Towers. E. J. Barbier. 14,014. July 20.
Purifying Potable Waters by Alkalinisation and Subsequent Neutralisation. H. J. N. Bergé. 14,015. July 20.
Manufacture of Cyanide of Potassium, and Improved Furnaces for the Production of Cyanide of Ammonia. W. Schulte and F. A. Sapp. 14,054. July 21.

Gazette Notices.

PARTNERSHIP DISSOLVED.

R. BAILES AND S. HALLSWORTH, under the style of Bailes and Hallsworth, Leeds, manufacturing chemists.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 21st.

Acetic Acid—
Holland, 100 pkgs. Beresford & Co.
Albumen—
A. Turkey, £25 L. & I. D. Jt. Co.
Alkali—
Germany, 300 c. Pillow, Jones & Co.
Belgium, 220 Arnati & Harrison
Alum—
Holland, 142 pkgs. Ohlenschlager Bros.
Anthracene—
Holland, 250 pkgs. Burt, Boulton & Co.
Asbestos—
France, 4115 Mory & Co.
Italy, 164
Holland, 10 Philipps & Graves
Barium Chloride—
Germany, 67 pkgs. H. Lambert
Petri Bros.
Barytes—
Holland, 21 cks. Burrell & Co.
Belgium, 20 P. Janzen
Germany, 80 W. Harrison & Co.
Holland, 22 J. Browne & Co.
Bleaching Soda—
Germany, 85 c. H. Lambert
Boracic Acid—
Germany, 18 pkgs. F. Boehm
Borate of Lime—
A. Turkey, 1,090 pkgs. M. D. Co.
Bromide of Iron—
Germany, 3 pkgs. A. & M. Zimmermann
Bromine—
Germany, 62 pkgs. A. & M. Zimmermann
Camphor—
China, 101 pkgs. S. Figgis & Co.
" 10 E. Barber & Co.
Japan, 66 R. Warner & Co., Ltd.
Hong Kong, 100 cs. T. Merry & Son
Caoutchouc—
E. Indies, 212 c. T. Merry & Son
" 32 Butler's Wf., Ltd.
" 108 E. Boustead & Co.
" 56 Prop. Hay's Wf.
" 15 L. & I. D. Jt. Co.
Zanzibar, 72
" 40 Clarke & Smith
" 25 Hale & Smith
Ecuador, 10 Prop. Bull Wf.
Germany, 10 Wallace Bros.
" 18 Forbes, Forbes & Co.
Ibo, 23 Lewis & Peat
Carbonic Acid Gas—
Holland, 4 pkgs. G. Rahn & Co.
" 101 J. Barber & Co.
Castor Oil—
Italy, 25 cs. City Coml. Wf., Ltd.
" 25 Stebbing & Co.

E. Indies, 175 cks. Ross & Deering
" 79 Cayzer, Irvine & Co.
" 70 cs. Anderson, Weber & Smith
France, 70 cks. J. T. Morton
" 25 brls. F. Boehm
" 10 Beresford & Co.
Caustic Potash—
Holland, 5 cs. J. Barber & Co.
France, 50 c. Petri Bros.
Germany, 3 pkgs. Pickford & Co.
Caustic Soda—
Germany, 4 c. W. J. Crook
Chemicals (otherwise unclassified)
N. Zealand, 1 pkgs. E. aus, Leichter & Co.
Germany, 30 pkgs. Brit. Anti-Fouling
" 26 20 cks. T. H. Lee
" 66 A. & M. Zimmermann
Holland, 12 J. Barber & Co.
Norway, 21 A. Hughes
U. States, 24
Citrate of Lime—
Italy, 30 pkgs. Thames S. T. & L. Co., Ltd.
Cream of Tartar—
Holland, 16 pkgs. Kirkpatrick & Co.
Italy, 23 Howards & Sons
France, 5 W. C. Bacon & Co.
" 2 F. C. Devon & Co.
" 7 B. & F. Wf. Co.
" 3 Ross & Deering
" 2 S. Hanson, Son & Co.
" 1 J. L. Lyon & Co.
Dextrine—
Holland, 10 pkgs. J. Barber & Co.
Germany, 50 M. D. Co.
Dyestuffs—
Annatto
E. Indies, 8 pkgs. Brown & Elmslie
Argols
Italy, 2,708 pkgs. J. B. Jacob & Sons
" 93 Thames S. T. & L. Co., Ltd.
Cape, 157 Brown & Elmslie
Gutch
E. Indies, 700 pkgs. J. Swire & Sons
Divi Divi
E. Indies, 112 pkgs. Culverwell, Brooks & Co.
Extracts
France, 10 pkgs. T. H. Lee
Canada, 320 A. J. Humphrey
Holland, 1 R. J. Fullwood & Bland
Denmark, 35 J. Forsey
" 2 J. Sinclair & Sons
" 16 Bailey & Leetham
" 5 M. D. Co.
Belgium, 120 L. J. Levinstein & Sons
Norway, 1 Johnson & Jorgensen
Fustic
Mexico, 35 t. Bourne, Graham & Co.
Indigo
Germany, 2 cts. L. & I. D. Jt. Co.
E. Indies, 80
" 36 Wallace Bros.
" 30 Croysdale & Co.

" 54 Park, Macfadyen, & Co.
" 42 Arbuthnot, Latham, & Co.
" 5 Parsons & Keith
" 39 W. Brandts, Son & Co.
" 63 R. Von Glehn & Sons
" 10 Eales & Rutherford
" 9 Stockwell & Co.
Austria, 1 pkgs. B. & F. Wf. Co.
Madder
France, 1 pkgs. B. & F. Wf. Co.
Myrabolams
E. Indies, 667 pkgs. L. & I. D. Jt. Co.
" 269 F. Claydon & Co.
" 1,366 W. Shelcott
" 2,729 H. J. Perlach & Co.
" 1 L. & I. D. Jt. Co.
Cochin, 51
Saffron
Spain, 2 pkgs. J. Knill & Co.
Sumac
Italy, 500 pkgs. Beresford & Co.
" 500 J. Kitchin, Ltd.
" 75 Harris Bros.
Tanners' Bark
Germany, 111 t. Bevington & Sons
France, 1 J. Burnett & Sons
Adelaide, 26 Beresford & Co.
" 44 Dyster, Nalder & Co.
" 88 A. & W. Nesbitt
" 101 S. Barrow & Bro., Ltd.
Natal, 91 A. & W. Nesbitt
" 54 Boucher, Mortimore, & Co.
Belgium, 20 Leach & Co.
Turnerite
Germany, 312 pkgs. J. P. Alpe & Co.
E. Indies, 200 Wrightson & Son
" 102 Brown & Elmslie
" 511 Union L. Co., Ltd.
" 320 Hoare, Wilson, & Co.
" 50 J. P. Alpe & Co.
Cochin, 461
" 120 J. A. Drew
E. Indies, 250 L. & I. D. Jt. Co.
Valonia
A. Turkey, 50 t. Hoare, Wilson, & Co.
" 350 A. & W. Nesbitt
Farina—
Holland, 100 pkgs. P. Windmuller, & Co.
" 300 Philipps & Graves
Germany, 100 Seaward Bros.
Holland, 100 Ohlenschlager Bros.
" 100 N. van Lessen
" 50 H. Lorenz
" 50 J. Barber & Co.
France, 2 Fellows, Morton, & Co.
" 2 Hernu, Peron, & Co.
Gamboge—
E. Indies, 14 pkgs. L. & I. D. Jt. Co.
Glucose—
France, 200 pkgs. 200 c. Carey & Sons Prop.
" 300 300 c. Fenning's Wf.
Germany, 500 500 J. Barber & Co.
" 800 800 Baxter & Hoare

" 25 198 Prop Chmbln.'s Wf.
U. States, 1,000 1,000 L. Sutro & Co.
" 997 997 R. G. Hall & Co.
Iron Oxide—
Holland, 117 pkgs. W. Hawkins
Austria, 21 cks. M. D. Co.
A. Turkey, 800 t. " "
Lead Acetate—
Germany, 15 pkgs. F. Boehm
Manganese—
E. Indies, 300 t. Sawyer, Sons, & Co.
Manure—
Germany, 45 t. T. McCarnie & Co.
" 52 F. W. Berk & Co., Ltd.
" 50 Perkins & Homer
E. Indies, 120 Fox, Roy, & Co.
France, 27 J. Burnett & Sons
Methyl Alcohol—
Belgium, 10 dms. Lister & Biggs
Mica—
E. Indies, £345 W. M. Smith & Sons
Ochre—
Holland, 18 pkgs. Philipps & Graves
France, 106 cks. Colthurst & Harding
Paraffin Wax—
U. States, 396 brls. H. Hill & Sons
" 81 G. H. Frank
" 825 brls. 4 cs. Angl'-American Oil Co.
Phosphate Rock—
France, 460 t. A. Hunter & Co.
" 265 Lawes Manure Co.
Pitch—
N. Russia, 500 cks. Linck, Moeller, & Co.
Plumbago—
Italy, 100 brls. J. Thredder, Son, & Co.
Ceylon, 277 R. G. Hall & Co.
" 619 L. & I. D. Jt. Co.
Germany, 45 cs. Prop. Scott's Wf.
Potash—
Canada, 133 c. Charles & Fox
France, 50 Petri Bros.
Potassium Bicarbonate—
Holland, 15 cks. A. & M. Zimmermann
Potassium Carbonate—
Germany, 100 c. Petri Bros.
France, 90 J. A. Reid
Potassium Cyanide—
Holland, 2 pkgs. F. Boehm
Potassium Muriate—
Germany, 123 pkgs. W. G. Blagden
Potassium Permanganate—
Holland, 20 pkgs. 6 kgs. J. Barber & Co.
Pumice Stone—
Italy, 6 t. Acton & Borman
" 4 O'Hara & Hoar
" 2½ T. Hill Jones

Quicksilver— Italy, 500 bbls. L. & I. D. Jt. Co.	
Rosin— Germany, 5 bbls. Brit. Anti-fouling Co.	
U. States, 100 J. Watt & Son	
" 1,200 Moore & Hole	
" 200 Paton & Charles	
" 2,200 Prod. Brokers Co.	
" 1,000 J. Knight & Son	
" 1,150 G. Nutter & Co.	
Holland, 2 Wilkinson, Heywood, & Co.	
Salammoniac— Holland, 4 pkgs. Kaltenbach & Schmitz	
Saltpetre— Germany, 222 cks. P. Hecker & Co.	
" 7 I. Witt	
" 7 Brown & Elmslie	
E. Indies, 2,222 bgs. Lucas & Spencer's Wf.	
Soda— Holland, 220 c. City Coml. Wf., Ltd.	
Sodium Hyposulphite— Germany, 166 pkgs. F. Boehm	
Holland, 50 Beresford & Co.	
Sodium Sulphate— Belgium, 420 c. R. Waters	
Starch— Belgium, 200 pkgs. T. H. Lee	
" 70 F. Rosenthal & Co.	
" 50 F. Claydon & Co.	
" 260 Leach & Co.	
" 500 Sawyer, Sons, & Co.	
Holland, 112 Taylor Bros.	
" 1,130 Little & Johnston	
" 150 Philipps & Graves	
Germany, 50 Horne & Co.	
U. States, 980 Oswego Co.	
France, 125 White Bros.	
Stearine— Adelaide, 87 pkgs. Ross & Deering	
Sulphur— Italy, 1 t. E. W. Carling & Co.	
Talc— E. Indies, 165 Williams, Torrey, & Co.	
Tallow and Stearine— U. States, 51 cks. Allan Brs. & Co.	
Germany, 10 J. Witt	
Tartaric Acid— Holland, 50 pkgs. B. & F. Wf. Co.	
Italy, 8 C. Christophersen & Co.	
Germany, 8 F. C. Devon & Co.	
Tar— N. Russia, 1,935 bbls. Un. Wvs. Co.	
" 1,935 Linck, Moeller & Co.	
Ultramarine— Belgium, 5 cs. W. Harrison & Co.	
" 6 bbls. Leach & Co.	
" 23 cks. F. Claydon & Co.	
Germany, 2 cs. H. Brooks & Co.	
" 20 cks. Bremer, Bennett & Co.	
Holland, 20 Hernu, Peron & Co.	
" 10 pkgs. Haefner, Hilpert & Co.	
Yarnish— U. States, 23 pkgs. Beck & Pollitzer	
Belgium, 4 T. H. Lee	
U. States, 14 Staynes & Smith	
White Lead— Germany, 40 cks. W. & A. Hopmann	
" 27 S. H. Willoughby	
Holland, 20 Burrell & Co.	
France, 39 J. Watts & Sons	
Belgium, 2 bbls. J. L. Lyon & Co.	
Wood Pulp— Germany, 20 pkgs. C. J. Capes & Co.	
Austria, 150 Horton-Kirby Paper Co.	
Canada, 11,649 E. J. & W. Goldsmith	
Holland, 1,640	
" 82 Henderson, Craig & Co.	
" 540 Philipps & Graves	
Norway, 2,720 C. Christophersen & Co.	
" 110 Tough & Henderson	
" 120 M. D. Co.	
Germany, 163 O. Herrlich	
" 203 W. Friedlander	
" 99 Horton-Kirby Paper Co.	
Sweden, 476 C. S. Lovell	
" 1,335 Moreton Cox Bros.	
Portugal, 50 W. G. Taylor & Co.	
Zinc Oxide— Germany, 50 bbls. M. Ashby, Ltd.	
" 6 cks. City Coml. Wf., Ltd.	

LIVERPOOL.

Week ending July 19th.

Acetate of Lime— New York, 1,654 bgs.	
Montreal, 1,377	
New York, 1,648 Manchester Ship Canal Co.	
" 356 J. W. Coulston & Co.	
Acetic Acid— Rotterdam, 5 cbys.	
Aluminium— New York, 33 cs.	
Barytes— Antwerp, 150 bgs. 11 cks.	
Boracic Acid— Laghorn, 20 cks.	
Cellulose— Fiume, 122 bbls. W. Friedlander	
Colours— Hamburg, 6 cs.	
Antwerp, 12 cks. J. T. Fletcher & Co.	
Cream of Tartar— Barcelona, 5 bbls. 10 pps. 7 cks.	
Dried Blood— Campana, 107 bgs.	
Dyestuffs— Gutch Rangoon, 3,056 bbs.	
Extracts Bordeaux, 100 cks.	
Fiume, 300 bbls.	
Antwerp, 10 J. T. Fletcher & Co.	
Fustic Corfu, 120 bbls. Barff & Co., Ltd.	
Trieste, 20 t. A. Cross & Co.	
Myrabolams Bombay, 667 bgs. D. Sassoon & Co.	
" 376 Aldridge, Salmon & Co.	
Saffron Valencia, 1 cs.	
Yalonia Smyrna, 150 bgs. 115 t. G. Essayan & Co.	
" 1,619 113 t.	
Glucose— New York, 150 bbls. T. M. Duche & Son	
" 35	
Hamburg, 100 cks.	
Infusorial Earth— Hamburg, 35 bgs.	
Limestone— Antwerp, 1 cs. J. T. Fletcher & Co.	
Methyl Alcohol— Antwerp, 5 bbls.	
Mineral White— Genoa, 20 bgs.	
Ochre— Bordeaux, 50 cks.	
Rouen, 15 cks. Co-op. W'sale Society, Ltd.	
Paint— Boston, 55 cs.	
Paraffin Scale— Philadelphia, 1,300 bbls.	
Phosphate— Montreal, 315 t.	
Phosphate Rock— Aruba, 390 t. G. Hadfield & Co.	
Plumbago— Genoa, 100 bgs. G. Huntriss & Co.	
Potash— Montreal, 25 bbls.	
Pumice Stone— Teneriffe, 382 bgs.	
Pyrites— Huelva, 4,503 t. Matheson & Co.	
Rosin— New York, 118 bbls. F. W. Blossom	
Parnahyba, 163 bgs. Gunston, Sons & Co.	
" 17 C. Singlehurst	
" 117 Leech, Harrison & Co.	
Savanilla, 900 bbls.	
Saltpetre— Karachi, 93 bgs.	
Hamburg, 125 kgs. 2 bbls.	

Soap—

Malta, 2 cs.	
Bordeaux, 10	
Genoa, 21	
New York, 4	
Soapstone— Genoa, 250 bgs. G. Huntriss & Co.	
Trieste, 500 W. Harrison & Co.	
Caleta Buena, 22,040 bgs.	
Sodium Nitrate— New York, 1,000 sks.	
Rotterdam, 216 cs.	
Antwerp, 60 cs. J. T. Fletcher & Co.	
Hamburg, 132	
Stearine— New York, 2 tcs. W. Walker & Son	
" 15 hds.	
Antwerp, 25 bgs.	
Sulphur— Genoa, 400 bgs. Pacific S. Nav. Co.	
Tallow— Baltimore, 24 bbls.	
New York, 125 hds.	
Philadelphia, 93 100 340 tcs.	
Rotterdam, 43	
Tar Oil— New York, 120 bbls.	
Tartar— Bordeaux, 4 cks.	
Tartaric Acid— Naples, 39 bbls.	
Rotterdam, 1 ck.	
Turpentine— Savannah, 2,535 bbls. Liverpool Storage Co.	
" 100 cks.	
Ultramarine— Hamburg, 4 cks.	
Verdigris— Bordeaux, 1 ck.	
Waste Salt— Hamburg, 40 t. Duke's Dock Co.	
" 95 bgs.	
White Lead— Rotterdam, 57 cks.	
Wood Pulp— Montreal, 5,435 bbls.	
Oporto, 400 bbls. Ciama Wood Pulp Co.	
Hamburg, 525 bgs.	
Gothenburg, 6 pkgs. G. Schenkenwald & Co.	
Montreal, 21,455 bbls. A. Rice & Co.	
Zinc Oxide— New York, 30 bbls.	
Antwerp, 25	
Rotterdam, 125 cks.	

MANCHESTER.

Week ending July 21st.

Acetic Acid— Rotterdam, 25 bbls. Simpson, Howden, & Co.	
Alum— Rotterdam, 8 bbls. Simpson, Howden, & Co.	
Alumina Sulphate— Rotterdam, 24 cs. Simpson, Howden, & Co.	
Barytes— Antwerp, 10 cks.	
Cadmium Nitrate— Hamburg, 1 cs.	
Carbonic Acid— Rotterdam, 30 tubes.	
Castor Oil— Antwerp, 6 bbls.	
Chemicals (otherwise undescribed) Rotterdam, 7 cks.	
Hamburg, 8 7 cs.	
Colours— Rotterdam, 21 cks. 35 cs. 22 bbls.	
Simpson, Howden, & Co. 33 cks. 26 cs. 3 bbs. 31 bbls.	
Hamburg, 8	
Cream of Tartar— Rotterdam, 20 kgs.	
Dyestuffs— Alizarine Rotterdam, 1 cs. Simpson, Howden, & Co.	
Extracts Rotterdam, 10 cks. Simpson, Howden, & Co.	
Farina— Hamburg, 50 bgs.	
Limestone— Antwerp, 1 cs.	
Litharge— Rotterdam, 15 cks. Simpson, Howden, & Co.	
Methyl Alcohol— Antwerp, 5 bbls.	
Oxalic Acid— Rotterdam, 17 cks. Simpson, Howden, & Co.	
Potash— Rotterdam, 10 cks. Simpson, Howden, & Co.	
Antwerp, 19 dms. 16 cks.	
Potassium Chloride— Hamburg, 97 bgs.	
Salicylic Acid— Hamburg, 1 cs.	
Starch— Rotterdam, 10 cs. Simpson, Howden, & Co.	
Antwerp, 94	
Tannin— Hamburg, 8 cks.	
Tartaric Acid— Rotterdam, 2 cks.	
Tin Perchloride— Antwerp, 2 cks.	
Ultramarine— Rotterdam, 2 cks. Simpson, Howden, & Co.	
Waste Salt— Hamburg, 240 t. qty.	
Zinc White— Rotterdam, 4 cks.	

HULL.

Week ending July 21st.

Acetic Acid— Rotterdam, 20 ins. Hutcheon & Son	
Acid— Laghorn, 21 cks. Wilson, Sons, & Co., Ltd.	
Alkali— Bremen, 4 pks. Veltmann & Co.	
Aluminium— Antwerp, 1 cs.	
Antimony— Hamburg, 18 cs. Wilson, Sons, & Co., Ltd.	
Arsenic— Hamburg, 340 cks. Wilson, Sons, & Co., Ltd.	
Barytes— Antwerp, 50 cks. Bailey & Leatham	
Rotterdam, 55 W. & C. L. Ringrose	
Bremen, 74	
Castor Oil— Calcutta, 3,000 cs.	
Laghorn, 38 pks. Wilson, Sons, & Co., Ltd.	
Genoa, 38 cs.	
Chemicals (otherwise undescribed) Stettin, 29 bbls. Wilson, Sons, & Co., Ltd.	
Bremen, 2 kgs. Veltmann & Co.	
Danzig, 16 bbls. W. & C. L. Ringrose	
Antwerp, 91 pks. Wilson, Sons, & Co., Ltd.	
Dunkirk, 18 cks.	
Hamburg, 4	
Colours— Ghent, 10 cks.	
Antwerp, 9 Bailey & Leatham	
Rotterdam, 23 cs. 38 19 pks. 23 bbls. Hutchinson & Son	
" 6 113 pks. W. & C. L. Ringrose	
Stettin, 50	
Bremen, 5 Veltmann & Co.	
" 2 F. C. Cardwell & Co.	
Hamburg, 3 G. Malcolm & Son	
Danzig, 20 Wilson, Sons, & Co., Ltd.	
" 20 bbls. W. & C. L. Ringrose	
Amsterdam, 1 ck.	

Cottonseed Oil— Rotterdam, 12 bbls. Hutchinson & Son Copper Oxide— Rotterdam, 6 cs. Hutchinson & Son Dyestuffs— Alizarine Rotterdam, 8 bbls. Hutchinson & Son Argols Bordeaux, 64 bgs. Rawson & Robinson Indigo Marseilles, 9 cts. Logwood Antwerp, 30 bgs. Wilson, Sons, & Co., Ltd. Myrabolams Bombay, 4,723 bgs. Farina— Ghent, 250 cs. Wilson, Sons, & Co., Ltd. Stettin, 340 bgs. Danzig, 184 Harlingen, 1,035 bgs. Glucose— New York, 334 bgs. Stettin, 200 bgs. Wilson Sons & Co., Ltd. Ochre— Leghorn, 452 bgs. Marseilles, 75 pks. Wilson, Sons, & Co., Ltd. 31 cks. Paint— New York, 1 bbl. Phosphate— Ghent, 816 bgs. 81 t. Pitch— Antwerp, 21 cks. Wilson, Sons, & Co., Ltd. Hamburg, 8 cs. Plumbago— Leghorn, 100 bgs. Potash— Antwerp, 4 dms. Bailey & Leatham Pumice Stone— Leghorn, 12 bgs. 106 pks. Wilson, Sons, & Co., Ltd. Marseilles, 9 Saltpetre— Hamburg, 10 cks. Bailey & Leatham Soap— New York, 150 pks. Wilson, Sons, & Co., Ltd. Marseilles, 12 cs. Starch— Rotterdam, 120 cs. Hutchinson & Son Bremen, 3,229 Veltmann & Co. Talc— New York, 150 bgs. Wilson, Sons, & Co., Ltd. Tar— Rafso, 222 bbls. 28 hf.-bbls. J. Good & Sons Uleaborg, 1,450 bbls. Tartaric Acid— Rotterdam, 3 cks. Hutchinson & Son	Tin Oxide— Rotterdam, 6 cks. W. & C. L. Ringrose 4 Hutchinson & Son Ultramarine— Rotterdam, 8 cks. White Lead— Antwerp, 23 cks. Bailey & Leatham Rotterdam, 17 W. & C. L. Ringrose 20 Hanger, 29 Watson & Harris Tudor & Sons Wood Pulp— Norroping, 90 bbls. Bailey & Leatham Helsingfors, 22 J. Good & Sons 323 Farley & Co Zinc Oxide— Antwerp, 50 cks. Bailey & Leatham	Lead Acetate— Rotterdam, 34 cks. J. Rankine & Son Hamburg, 12 Paint— New York, 2 bxs. 40 kgs. Phosphate— Bona, 700 t. Potash— Rotterdam, 52 cks. J. Rankine & Son Potassium Prussiate— Amsterdam, 2 cks. Pyrites— Huelva, 1,758 t. Tharsis Co. Rosin— Savannah, 1,400 bbls. Saltpetre— Calcutta, 1 pkg. Soap— Philadelphia, 100 bbls. 425 bxs. 19 cts. Fiume, 255 cs. New York, 30 bbls. Sodium— Rotterdam, 1 ck. J. Rankine & Son Starch— Fiume, 30 bgs. Wm. Stirling & Sons 30 Rotterdam, 47 cs. J. Rankine & Son Stearine— Antwerp, 13 bgs. Sulphur— Fiume, 150 bgs. Tartar Emetic— Hamburg, 4 cks. Tartaric Acid— Rotterdam, 10 cks. J. Rankine & Son Turpentine— Savannah, 1,100 bbls. Varnish— New York, 6 bbls. J. Storer & Co. " 4 J. & J. Scott " 4 Blacklock & M'Arthur " 6 1 cs. Waste Salt— Hamburg, 312 t. 215 cks. White Lead— Rotterdam, 90 cks. J. Rankine & Son Wood Pulp— Fiume, 1,233 bbls. Christiania, 2,960 Zinc Oxide— Rotterdam, 21 cks. J. Rankine & Son Antwerp, 45 New York, 100 bbls.	Carbonic Acid Gas— Rotterdam, 50 tubes. Tyne S. S. Co. Colours— Hamburg, 4 cks. Tyne S. S. Co. Gryllite— Copenhagen, 1 cs. Phosphate— Geelong, 2,511 t. Langdale's Antwerp, 400 Chmcl. Manure Co. Pitch— Archangel, 325 cks. Starch— Rotterdam, 76 bgs. Tyne S. S. Co. Stearine— Antwerp, 7 bgs. Tyne S. S. Co. Sulphur Ore— Memel, 400 t. Bede Metal & Chemical Co Tar— Archangel, 2,666 bbls. Varnish— Antwerp, 3 bbls. Tyne S. S. Co. Wood Pulp— Laurvig, 120 bbls. Zinc Oxide— Antwerp, 25 bbls. Tyne S. S. Co.
	GLASGOW. <i>Week ending July 26th.</i> Acetate of Lime— New York, 742 bgs. Acetic Acid— Rouen, 8 cks. Ammonium Sulphate— Rotterdam, 17 cks. J. Rankine & Son Aniline— Rotterdam, 2 cs. 19 cks. J. Rankine & Son Aniline Colours— Hamburg, 6 cks. 3 cs. Arachide Oil— Rotterdam, 1 ck. J. Rankine & Son Barium Sulphate— Antwerp, 200 bgs. 72 cks. Barytes— Rotterdam, 37 cks. J. Rankine & Son Castor Oil— Antwerp, 57 cks. Chemicals (<i>otherwise undescribed</i>) Hamburg, 1 cs. Chrome Ore— Macri, 2,200 t. Stevenson, Carlile & Co. Colour— Hamburg, 3 cks. 3 cs. J. Rankine & Son Rotterdam, 1 " Amsterdam, 6 24 pkgs. Dyestuffs— Alizarine Rotterdam, 6 cks. J. Rankine & Son " 55 pkgs. Extracts Antwerp, 3 cks. 1 cs. Fiume, 150 George Dickson 401 Farina— Delfsylv, 100 bgs. French Chalk— Fiume, 350 bgs. Iron Oxide— Fiume, 26 cks. Ferguson & Reid	TYNE. <i>Week ending July 21st.</i> Aniline— Rotterdam, 2 cks. Tyne S. S. Co. Barytes— Rotterdam, 57 cks. Tyne S. S. Co. Antwerp, 25 bbls.	GOOLE. <i>Week ending July 18th.</i> Alum— Rotterdam, 13 cks. Antimony— Boulogne, 4 cks. Caoutchouc— Boulogne, 4 cks. Dyestuffs— Alizarine Rotterdam, 116 pkgs. Extracts Ghent, 100 cks. Dyestuffs (<i>otherwise undescribed</i>) Rotterdam, 55 pkgs. Boulogne, 4 2 cs. 3 cks Ghent, 2 8 Farina— Delfsylv, 1,865 bgs. Saltpetre— Hamburg, 1 ck. Rotterdam, 100 bgs. Starch— Antwerp, 381 cs. Waste Salt— Hamburg, 593 t. 500 bgs. Zinc Oxide— Antwerp, 25 bbls.
		GRIMSBY. <i>Week ending July 21st.</i> Aniline Dyes— Hamburg, 2 cs. Caoutchouc— Antwerp, 1 cs. Hamburg, 16 Chemicals (<i>otherwise undescribed</i>) Hamburg, 7 cks. Dyestuffs (<i>otherwise undescribed</i>) Dieppe, 39 cks. Starch— Antwerp, 20 cs.	

EXPORTS OF CHEMICAL PRODUCTS
OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending July 25th.</i>															
Alkali —				Ammonia —				Trebizonde , 15 c.				Arsenic —			
Alcoa Bay, 10 c.				Huelva, 16 c.				Bombay, 4 t. 10				Sydney, 2 t.			
Stamboul, 1 t. 12				Melbourne, 12 pks.				Kurrachee, 1 1				Barytes Sulphate —			
N. Orleans, 12				Singapore, 2 c.				Philadelphia, 5 2				Palermo, 15 cks.			
Vera Cruz, 1				Sydney, 8 cs.				Ghent, 3 cks.				Boracic Acid —			
Rio de Janeiro, 1 17				Boulogne, 3 c.				Cologne, 1				Melbourne, 7 cks.			
Aluminous Cake —				Ammonium Carbonate —				B. Ayres, 10				Borax —			
Calcutta, 18 t. 3 c.				New York, 15 t. 7 c.				Constantinople, 6				Melbourne, 10 t. 1 c.			
				Melbourne, 10				Ammonium Sulphate —				Bombay, 12			
				B. Ayres, 1				Rouen, 45 t. 11 c.				Calcium Phosphide —			
				Ammonium Chloride —				Amorphous Phosphorus —				Bombay, 1 cs.			
				Madras, 8 cks. 1 t. c.				Oporto, 1 cs.							

Carbolic Acid—

Melbourne,	2 c.	£8
Gisborne,	18	28
Yokohama,	1 t. 10	77
Hamburg,	22 13	147
Antwerp,	6 cks.	8
B. Ayres,	2 cs.	11

Caustic Potash—

Adelaide,	1 t. 6 c.	£34
Bombay,	1 3	21

Caustic Soda—

Beichane,	4 t. 10 c.	£91
Algoa Bay,	2 7	51
Natal,	2 7	60
Melbourne,	9	126
Madras,	1 3	14

Chemicals (otherwise undescribed)

Huelva,	16 c.	£18
Cape Town,	2	11
Stamboul,	2 cs.	12
Dunedin,	4	72
Boston,	19 pks.	20
Melbourne,	7 kgs.	34
E. London,	6	50
Dunkirk,	6 t. 4	74

Chloride of Lime—

Huelva,	1 t. 3 c.	£10
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Citric Acid—

Christiana,	1 ck.	£6
Marseilles,	5 kgs.	33
Cape Town,	1 cs.	5
Lyttelton,	1	7
Rotterdam,	2 cks. 1 c.	73
Genoa,	1 t. 15	243
Melbourne,	1	131
Cadiz,	4	29
Hamburg,	2 kgs.	10
Canterbury,	1	7
Sydney,	10	61
St. Petersburg,	1 5	10 cks. 514
Bombay,	2 cs.	9

Coal Products—

Alizarine	5 cs.	£350
Aniline	1 cs.	£16
Aniline Dyes	15 cs.	£87
Benzol	23 dms. 97 cks.	£532
Boulogne,	40 pns.	256
Creosote	150 brls.	£1,008
Naphthaline	5 cks.	£72
Paraffin Wax	20 bgs.	8
Pitch	25 bgs.	£50
Alexandria,	150 brls.	£42
Melbourne,	10 kgs. 1 cs.	8
Hobart,	6 ctes. 10	262
Boston,	1,674 bgs.	319
New York,	550 cks.	160
St. John's, N.B.,	248	
Tar	225 dms.	£20
Algoa Bay,	51	10

Copper Sulphate—

Varna,	1 t. 13 c.	£24
Boulogne,	5	80
Treport,	10	140

Copperas—

Sydney,	5 t. 9 c.	£10
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Cream of Tartar—

Melbourne,	2 t.	£133
Adelaide,	1 13 c.	121
Fremantle,	8	30
Hobart,	5	16
Sydney,	4	15
Wellington,	10	33
Canterbury,	10	33

Disinfectants—

Penang,	151 pks.	£100
Paris,	3 t.	15
Shanghai,	5 cks.	35
Melbourne,	14 cs.	64
Hong Kong,	20 dms.	24
Bombay,	60	15
Sydney,	3 c. 50 8 cs.	79

Dried Blood—

Paris,	19 t. 18 c.	£155
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Hydrochloric Acid—

Huelva,	7 c.	£15
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Manure—

Natal,	1 t. 2 c.	£30
Lyttelton,	200	800
Riga,	443 11	1,113
Jamaica,	26 10	143
Gothenburg,	103 10	294
Rouen,	20	200

Nitric Acid—

Huelva,	17 c.	£36
Madras,	10 cs.	8

Phosphorus—

Melbourne,	9 c.	104
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Potash—

Sydney,	5 c.	£28
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Potash Crystals—

Oporto,	4 cs.	£38
New York,	11 c.	63
Paris,	2	40
Brussels,	2	19

Potash Salts—

Natal,	34 t. 17 c.	£5,683
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Potassium Carbonate—

Adelaide,	9 c.	£7
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Potassium Chlorate—

New York,	10 t. 16 c.	£560
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Potassium Cyanide—

Algoa Bay,	1 t.	£189
Normanton,	3 12 c.	455

Potassium Prussiate—

New York,	111 cks.	£1,689
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Saltpetre—

Adelaide,	1 t. 10 c.	£33
Lisbon,	7 6	158
Oporto,	3 10	62
Nelson,	3 10	13
Melbourne,	1	22
Natal,	2 13	62
Sydney,	7 15	178
Rio Grande,	12	14
B. Ayres,	14	15
Rio de Janeiro,	3 6	70

Sheep Dip—

B. Ayres,	5 t. 11 c.	£202
Natal,	1,500 dms.	314
Napier,	160 pks.	106
Pt. Chalmers,	300 dms.	30
Wellington,	197	218
Algoa Bay,	1,225	300
Sydney,	125	83
Melbourne,	500 50 cks.	297

Soda—

Algoa Bay,	3 t. 3 c.	£8
Madras,	6 6	24

Soda Ash—

Auckland,	10 t. 1 c.	£70
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Soda Crystals—

Natal,	3 t.	£8
Stockholm,	16 3 c.	36
Singapore,	2 2	5
Colombo,	1 9	13

Soda Salts—

New York,	4 t. 6 c.	£40
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Sodium—

Melbourne,	1 cs.	£11
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Sodium Bicarbonate—

Jamaica,	13 c.	£7
Natal,	1 t. 5	11

Sodium Silicate—

Auckland,	12 t. 9 c.	£120
Napier,	5 3	50

Sodium Sulphate—

Stockholm,	70 t.	£105
Gothenburg,	215	250

Sulphuric Acid—

Trincomalee,	6 cs.	£9
Kurrachee,	3 c.	9

Superphosphate—

Lyttelton,	200 t.	£630
Riga,	500	1,500

Tartaric Acid—

Lisbon,	2 c.	£9
Adelaide,	4 11	444
Wellington,	3	13
Fremantle,	3	15
Sydney,	10	47
Bombay,	3	16
Melbourne,	1	95

LIVERPOOL.

Week ending July 25th.

Acetic Acid—

Barbadoes,	4 c. 3 q.	£6
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Alum—

Bombay,	14 t. 7 c.	£76
Quebec,	2 13	12
B. Ayres,	10 1	50
M. Video,	1	6
Rosario,	19	5

Alumina Sulphate—

Montreal,	10 t. 1 c.	£51
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Aluminous Cake—

Calcutta,	19 t. 4 c. 3 q.	£65
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Ammonium Carbonate—

Marseilles,	1 t. 5 c. 1 q.	£35
Trieste,	5 c.	9
Hamburg,	1 5 c.	48
Stettin,	5 1	9
Genoa,	1	34
Naples,	1	34
Montreal,	2	73
Odessa,	1	34

Ammonium Chloride—

Bushire,	1 t. 4 c.	£46
S. Jose de Guatemala,	10 1 q.	22
Syria,	8	15
Piræus,	6	11
Trieste,	1 t.	35
Galatz,	10	14
Kurrachee,	1 10	54
Piræus,	4	7
Kalamata,	3 1	7
Philadelphia,	24 15 2	652
Antwerp,	1 18	60
Marseilles,	1 4	45

Ammonium Sulphate—

Montreal,	10 t.	£56
Philadelphia,	50 8 c.	2 q. 720
Genoa,	9 18	2 q. 133
Gd. Canary,	12 10	179
Tagal,	50 15	665
Sourabaya,	593 6 2	7,938
Samarang,	68 5 3	592
Newport News,	100 17	1,482
Valencia,	55	770
Boston,	51 2 3	770
Mayaguez,	5 2 2	77
Las Palmas,	11 19 1	175

Antimony—

Piræus,	1 brl.	+
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Barytes Chlorate—

Carril,	1 c.	£5
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Bleaching Powder—

Boston,	704 cks.	126 cs. 50 brls.
Calcutta,		
Chicogo,		
Genoa,	130	
Havana,	7	
Montreal,	60	20 bxs.
New York,	83	
Rouen,	14	
Syria,	5	
Baltimore,	195	
Maranham,	20	
Newport News,	102	
San Sebastian,	58	

Borax—

Halifax,	3 t. 1 c.	£65
Rotterdam,	23 8 2 q.	489
Hamburg,	4 9	100
Alexandria,	11 2	13
Melbourne,	10	13

Calcium Chloride—

Sydney,	4 t. 16 c.	£11
Baltimore,	12 5 3 q.	33

Caoutchouc—

New York,	1 cs.	
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Carbolic Acid—

Montreal,	1 cs. 1 c. 3 q.	£26
Marseilles,	5	12
Rouen,	12 t. 2	679
Trieste,	4	11
New York,	1 17 3	112
Yokohama,	1 13 2	80
Odessa,	3 5 1	66
Antwerp,	4 1	12
Malta,	11	18
Philadelphia,	4	19
Baltimore,	7 cs.	40
Hamburg,	7 1	24

Caustic Potash—

Montreal,	1 t. 1 c.	£25
Newport News,	10	14
Savannah,	3	7

Caustic Soda—

Alexandria,	18 dms.	
Ancona,	20	
Bahia,	7c.	
Bari,	29	
Barranquilla,	18	
Bombay,	19	
Boston,	200	
Calcutta,	236	
Hioogo,	50	
Ibrail,	25	
Maranham,	2	
Milwaukee,	200	
Montreal,		25 pks. 10 bxs.
N. Orleans,	70	
Newport News,	394	30 brls.
Padang,	100	
Rouen,	50	
Samarang,	345	
Sydney,	179	
Alicante,	179	
Baltimore,	600	

Barcelona,	250 dms.	
Bilbao,	60	
Callao,	60	
Chicago,	150	
Galatz,	85	
Genoa,	166	
Hamburg,	30	
Havana,	110 3 cks.	
La Guayra,	10	
Madeira,	10	
Matanzas,	28	
Melbourne,	134	
Naples,	50	
Odessa,	40	
Passages,	100	
Piræus,	17	
Rio de Janeiro,	20	
Rotterdam,	129 14	
Savannah,	583 4 cs.	
Seville,		
Sourabaya,	35	

Chemicals (otherwise undescribed)

Genoa,	1 t. 11 c. 3 q.	£57
Samsoun,	2 6	85
Gothenburg,	2 4 1	86
Leghorn,	1	36
Danzig,	3 2	6
Palermo,	10	18
Messina,	2 3	5
B. Ayres,	15 2	30
Montreal,	1	36
Ancona,	2	4
Venice,	12	21
Odessa,	1 7 2	50

China Clay—

Bombay,	41 t.	
Boston,	480	
Montreal,	70	
New York,	100	
Barcelona,	20 10 c.	
Naples,	20	

Citric Acid—

Montreal,	5 c.	£35
Carril,	2	14

Coal Products—

Aniline Dyes	3 kgs.	
Aniline Oil	4 dms.	
Aniline Salts	22 cs.	
Creosote Oil	197 brls.	
Tar	25 brls.	
Bahia,	25	
Tar Oil	1 ck.	

Cobalt Oxide—

Magnesium Chloride — Bangkok, 10 c. £6	Salt — Yokohama, 11 c. 1 q 50 Rio de Janeiro, 1 5	Soda Alkali — Barcelona, 50 brls. Genoa, 72 Leghorn, 20 Odessa, 135 Valencia, 35 Venice, 15 Yokohama, 35	Dunkirk, 8 cks. Ghent, 10 kgs. Kobe, 500 Naples, 100 Rottendam, 59 Seville, 20 Syra, 20 Venice, 30 Bilbao, 50 B. Ayres, 43 Cienfuegos, 12 Havana, 35 Huelva, 30 Malaga, 20 M. Video, 25 Mossel Bay, 120 Newfairwater, 120 Quebec, 225 5 San Francisco, 300 Santander, 50 Vigo, 8
Magnesium Citrate — Carril, 1 ca.	Salt — Dunedin, 30 t. S. John's, N. B., 469 Trinidad, 17 Alligator Pond, 5 Antwerp, 405 Batanga, 22 Boston, 481 B. Ayres, 50 Faroe Is., 100 Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Manure — Santa Cruz, 27 t. £249 Gd. Canary, 31 363 Lanzarote, 16 c. 5 Teneriffe, 1 12 17	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Metallic Sodium — Rotterdam, 5 t. £981	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Nitrate of Lead — Lisbon, 5 c. £5	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Ochre — Lagos, 1 ck.	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Oxalic Acid — Philadelphia, 4 t. 10 c. £120	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Paint — Alexandria, 2 cks. 1 bx. Bilbao, 2 16 dms. Gijon, 16 dms. Hamburg, 11 Havana, 3 12 cs. Lisbon, 22 Malta, 114 kgs. Quebec, 16 St. John's, Nfd., 4 Accra, 1 76 cns. Algoa Bay, 1 Axim, 1 16 Bathurst, 11 tins. 5 Beyrout, 17 Bursch, 12 Humacao, 4 Iquitos, 2 Maranham, 4 Pt. Louis, 8 24 St. John's, Nfd., 2 100 Sanchez, 40 San Juan, 150 Sourabaya, 15 Tripoli, 25 Valparaiso, 10	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Painters' Colours — Alexandria, 30 cks. Antwerp, 6 Belize, 4 165 dms. Beyrout, 15 Bombay, 390 kgs. 35 cs. B. Ayres, 13 brls. 22 Constantinople, 70 Danzig, 100 bgs. Guantanamo, 2 9 1 toe. Hong Kong, 200 35 Montreal, 55 Odessa, 20 Para, 27 26 Philadelphia, 218 Pt. Elizabeth, 426 2 San Juan, 220 20 Seville, 10 Stettin, 10 Valparaiso, 175 Babia, 10 10 Corfu, 16 Maranham, 2 2 cs. Mayaguez, 2 Mollendo, 3 M. Video, 1 Ponce, 2 Salaora, 1	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 tcs. 40 kgs. 6 51 Calcutta, 6 6 Dunedin, 6 6 New York, 8,450 20 42 Philadelphia, 800 47 224 Sydney, 40 Yokohama, 469 Barcelona, 22 Bari, 200 Bombay, 17 H. Ayres, 795 Cartagena, Sp., 30 Christiania, 10 Cyprus, 50 Genoa, 100 Georgetown, 160 Hamburg, 160 19 Hiogo, 200 100 Kobe, 50 Meriton, 50 Newport News, 2,408 13 Norfolk, 30 Pernambuco, 50 Stettin, 200 Venice, 20 Algoa Bay, 12 Antwerp, 250 Babia, 10 Chicago, 250 Copenhagen, 75 E. London, 30 kgs. E. St. Louis, 667 Gothenburg, 21 Lisbon, 6 Maranham, 175 1 Montreal, 100 59 Oporto, 12 Rio de Janeiro, 60 Singapore, 20	Sodium Chlorate — Hamburg, 20 kgs. Sodium Hyposulphite — N. Orleans, 300 kgs. Sodium Nitrate — Las Palmas, 170 bgs. Sodium Oxide — New York, 16 cs. Sodium Prussiate — Boston, 8 cks. Sodium Silicate — Bilbao, 55 brls. Shallis, 5 Smyrna, 70 Sydney, 10 Cartagena, Sp., 20 cks. Montreal, 51 Oporto, 48 Salonica, 1 Stearine — Pernambuco, 20 cks Sulphur — Montreal, 150 t. 3 c. £612 Boston, 425 14 1,381 Superphosphate — Gr. Canary, 4 t. 10 c. £21 Las Palmas, 21 64 Tartaric Acid — Carril, 2 c. £10 Turpentine — Calcutta, 100 dms. Isles de Los, 10 Bonny, 2 trs. Ultramarine — Sydney, 33 brls. Yarnish — Boma, 12 brls. Bombay, 6 Boston, 9 dms. 8 cs. Cabenda, 25 brls. Genoa, 1 ck. 4 Larnaca, 1 Leghorn, 7 11 Matadi, 8 brls. Noqui, 15 Pt. Elizabeth, 2 Rotterdam, 1 4 Naples, 3 White Lead — San Jose de Guatemala, 1 ck. Bursch, 52 kgs. Whiting — Pernambuco, 30 cks. Maranham, 10 St. John's, Nfd., 15 Santos, 50 brls. Valparaiso, 100 Zinc Chloride — Bombay, 5 t. 16 c. £7 Bordeaux, 12 41 Zinc White — Rouen, 4 cks.
Paraffin Wax — Para, 4 cks.	Salt — Ghent, 95 Iceland, 157 Lebu, 10 Montreal, 1,534 Para, 99 Pt. Natal, 560 Rotterdam, 215 Stockholm, 67 Valparaiso, 108 Victoria, B. C., 120 Akassa, 400 Baltimore, 150 Christiania, 5 Gothenburg, 20 Halifax, 100 Melbourne, 630 Newport News, 50 Old Calabar, 60 Rio de Janeiro, 1 Santos, 200 ca.	Soda Ash — Adelaide, 110 brls. Boston, 2,438 bgs. 14 99 cks. 139 t	

Aniline Oil —	
Antwerp, 2 dms. 10 tins.	
Bleaching Powder —	
Rio de Janeiro, 4 cs.	
Chemicals (otherwise undescribed)	
Antwerp, 11 cks.	
Rotterdam, 15	
Copperas —	
Rio de Janeiro, 16 cks.	
Copper Sulphate —	
Rio de Janeiro, 1 cs.	
Cream of Tartar —	
Hamburg, 24 cks.	
Cresylic Acid —	
Hamburg, 24 cks.	
Manures —	
Rio de Janeiro, 1 cs.	
Pitch —	
Antwerp, 56 t. 15 c.	
Potassium Bichromate —	
Rio de Janeiro, 2 cks.	
Sodium Arseniate —	
Rotterdam, 4 cks.	
Tar Oil —	
Antwerp, 2 dms. 10 cks.	
Tar Salts —	
Antwerp, 3 cks.	
Zinc Chloride —	
Rotterdam, 32 cks.	

HULL.

Week ending July 21st.

Alkali —	
Harlingen, 8 cks.	
Ammonium Sulphate —	
Dunkirk, 200 bgs.	
Rotterdam, 1,853	
Stettin, 735	
Basic Slag —	
Danzig, 282 t.	
Bleaching Powder —	
Bremen, 4 cks.	
Boston, 164	
Harlingen, 18	
New York, 126	
Caustic Soda —	
Antwerp, 2 cks.	
Wyburg, 7	
Chemicals (otherwise undescribed)	
Amsterdam, 4 cks. 14 pkgs.	
Antwerp, 47 10	
Copenhagen, 2	
Christiania, 41 48	
Danzig, 30 6	8 cs.
Gothenburg, 60	
Ghent, 4	
Hamburg, 2	16
Harlingen, 50	
Konigsberg, 16 20	
Rotterdam, 44	44
Riga, 2	
Wasa, 3	
Wyburg, 5	
Cottonseed Oil —	
Antwerp, 65 c.	
Gothenburg, 100	
Hamburg, 379	
Konigsberg, 6	
Rotterdam, 1,085	
Stettin, 75	
Stavanger, 34	
Dyestuffs (otherwise undescribed)	
Boston, 10 cks.	
Christiania, 10 bls.	
Rotterdam, 23 5	
S. Petersburg, 49 17 cs.	
Linseed Oil —	
Aalesund, 17 c.	
Bergen, 483	
Bordeaux, 34	
Christiania, 739	
Drontheim, 181	
Hamburg, 258	
Hango, 103	
Rotterdam, 198	
Stettin, 13	
Naphthalene —	
Riga, 50 bls.	
Ochre —	
Ghent, 14 cks.	
Paint —	
Bergen, 2 cs. 3 cks.	
Painters' Colours —	
Amsterdam, 4 cks. 1 cs.	
Antwerp, 22 2 223 pks.	
Bergen, 1	
Boston, 70	

Copenhagen, 15 cks.	
Christiania, 2	92 pks.
Danzig, 14	
Drontheim, 30	148 dms.
Ghent, 12	
Hamburg, 52	
Helsingfors, 12 1	
Konigsberg, 69	
New York, 42	
Rotterdam, 7 1	2 pks.
Riga, 28	9 dms.
Stockholm, 87 25	
St. Petersburg, 100	
Wyburg, 100	
Pitch —	
Antwerp, 124 t.	
Helsingfors, 6 cks.	
Soap —	
Christiania, 4 cs.	
Tallow —	
Stockholm, 20 cks.	
Wasa, 115	
Tar —	
Abo, 120 cks.	
Copenhagen, 5	
Hamburg, 10	
Helsingfors, 195	
Stettin, 5	
Varnish —	
Antwerp, 2 cs.	
Bordeaux, 2 cks.	
Copenhagen, 1	
Christiania, 5	
Gothenburg, 2	
Uleaborg, 2	

GLASGOW.

Week ending July 26th.

Acid —	
Bombay, 306 t.	£1,600
Ammonia —	
Dunkirk, 250 t.	
Ammonium Carbonate —	
Valparaiso, 10 c.	£20
Ammonium Sulphate —	
W. Indies, 20 t. 9 c.	£310
Jamaica, 20	202
Hamburg, 50 12	710
Bleaching Powder —	
Melbourne, 24 t. 1 c.	£192
Bombay, 3 8 3/4	£37. 17 1/2
Calcutta, 33 15	£300
Boric Acid —	
Rouen, 1 t. 19 1/2 c.	£81
Japan, 2	72
Borax —	
Adelaide, 2 t.	£45. 10s.
Melbourne, 2 10 c.	£58
Callao, 1	21
Japan, 2 19 1/2	68
Caustic Soda —	
Jamaica, 1 t. 19 1/2 c.	£21
Mauritius, 2 19	26
Coal Products —	
Allzarine Colours	
Montreal, 19 1/2 c.	£108
Aniline Colours	
Montreal, 1 t. 12 1/2 c.	£247
Pitch	
New York, 121 t. 3 c.	£138
Calcutta, 85 14 1/2	£14. 10s.
Quebec, 34	£160
Valparaiso, 34	75
Karachi, 44	
Antwerp, 280 9 1/2	395
Tar	
Madras, 59	£227
Calcutta, 59	
Quebec, 68 t. 18 c.	120
Bombay, 22	
Singapore, 50 brls.	47
Colours —	
Melbourne, 2 t. 18 c.	£32
Dyestuffs —	
Extracts	
Montreal, 6 t. 10 1/2 c. £252. 10s.	
Quebec, 3 7	£145
Logwood	
Oporto, 5 t.	£37. 15s.
Furzeric	
Montreal, 4 t. 9 1/2 c.	£19
Lead Acetate —	
Bombay, 5 t. 16 c.	£82
Linseed Oil —	
Adelaide, 4 t. 3 1/2 c.	£100
Melbourne, 4 2 1/2	100
Malta, 1 11	£34. 19s.
Venezuela, 7 10 1/2	£217
Quebec, 9 3	207
Valparaiso, 500 glns.	57

Litharge —	
Bombay, 1 t. 15 c.	£31
Magnesium Sulphate —	
Melbourne, 19 t. 2 1/2 c.	£30
Rio de Janeiro, 15 5 1/4	73
Manure —	
Oporto, 2 t. 10 c.	£35
Nitric Acid —	
Shanghai, 1 t.	£27
Paint —	
New York, 1 t. 16 c.	£42
Colombo, 2 13	38
Venezuela, 7 6 1/2	172
Straits, 12 18 1/2	156
Valparaiso, 2 15 1/2	32
Demerara, 4 10	74
Singapore, 11 11 1/2	128
Hong Kong, 10 10 1/2	31
Shanghai, 2 3 1/2	36
Japan, 1 10	22
Painters' Colours —	
Melbourne, 4 t. 18 c.	£108
Rio de Janeiro, 1 2	25
Mauritius, 3 18	54
Rotterdam, 3 cks.	22
Bombay, 5 9 1/2	£64. 10s.
Hong Kong, 2 10 1/2	54
Japan, 1 17	30
Paraffin Wax —	
Venice, 2 t. 19 1/2 c.	£85
Trieste, 6 1 1/2	120
France, 1 1 1/2	35
Constantinople, 1 3 1/4	19
Potassium Bichromate —	
New York, 28 t. 7 c.	£1,125
Rouen, 6 16	238
Melbourne, 1 2 1/2	61
Venice, 2 10	100
Montreal, 5 5	199
Bombay, 5 7	206
Philadelphia, 13 12 1/2	541
Rosin Oil —	
Rotterdam, 15 brls.	£30
Philadelphia, 22	
Salt —	
Mauritius, 200 t.	£182
Soap —	
W. Indies, 1 t. 13 1/2 c.	£25
Valparaiso, 5 9 1/2	171
Soda —	
Valparaiso, 38 t. 17 1/2 c.	£88
Sodium Bichromate —	
Bombay, 1 t. 7 c.	£41
Sodium Silicate —	
Mauritius, 4 t. 15 c.	£21
Sodium Sulphate —	
Quebec, 12 t. 2 c.	£36
Sulphuric Acid —	
Madras, 11 t. 11 c.	£66
Tallow —	
Colombo, 12 1/2 c.	£21
Mauritius, 3 t. 1/2	79
Varnish —	
Melbourne, 21 t.	£453
White Lead —	
Rotterdam, 7 cks.	16
St. John's, N. B., 1 t. 7 1/2 c.	26

TYNE.

Week ending July 21st.

Alkali —	
Hamburg, 5 t. 5 c.	
Amsterdam, 9 11	
Antwerp, 11	
Riga, 10 4	
Antimony —	
Hamburg, 2 t. 10 c.	
Rotterdam, 4	
Arsenic —	
Catania, 11 c.	
Gothenburg, 1 t. 13	
Barytes Carbonate —	
Hamburg, 112 t.	
Bleaching Powder —	
Amsterdam, 20 t. 5 c.	
Antwerp, 16 13	
Christiania, 5 6	
Bergen, 5 2	
Odense, 3 12	
Rotterdam, 37 14	
Leghorn, 6 16	
Gothenburg, 15 17	
Copenhagen, 11 1	
Genoa, 9 19	
Trieste, 5 7	
Drontheim, 10 3	
Bilbao, 22 6	

Riga, 1 4 c.	
St. Petersburg, 130 5	
Konigsberg, 7 14	
Calcined Magnesia —	
St. Petersburg, 6 c.	
Caustic Soda —	
Amsterdam, 6 8 c.	
Genoa, 40 6	
Copenhagen, 6 19	
Trieste, 44 13	
Bilbao, 46 10	
Riga, 10 3	
Gothenburg, 4 18	
Colour —	
Rotterdam, 16 c.	
Naples, 1 14	
Copperas —	
Copenhagen, 10 7 c.	
Litharge —	
Hamburg, 16 c.	
Antwerp, 2 t. 16	
Gothenburg, 1 2	
Magnesia —	
Hamburg, 13 c.	
Catania, 8	
Manure —	
Valencia, 271 t. 5 c.	
Paint —	
Hamburg, 5 c.	
Copenhagen, 3 c.	
Bergen, 1 t. 17	
Salammoniac —	
St. Petersburg, 5 t. 10 c.	
Slag —	
Rotterdam, 205 t.	
Soda —	
Christiania, 5 t.	
Laurvig, 5 4 c.	
Rotterdam, 30	
Naples, 10 1	
Copenhagen, 3 4	
Ancona, 13 8	
Trieste, 63 5	
Gothenburg, 6 15	
Soda Ash —	
Hamburg, 15 t. 12 c.	
Trieste, 37 17	
Gothenburg, 13 5	
Konigsberg, 101 19	
Sodium Silicate —	
Bilbao, 6 t. 15 c.	
Sodium Sulphate —	
Copenhagen, 1 t. 2 c.	
Riga, 10	
Sulphur —	
Antwerp, 5 t.	
Gothenburg, 78 18 c.	
Superphosphate —	
Helsingborg, 512 t. 3 c.	
Riga, 873 17	
White Lead —	
Hamburg, 1 t.	
Copenhagen, 5 4 c.	

GOOLE.

Week ending July 18th.

Chemicals (otherwise undescribed)	
Boulogne, 2 cks.	
Hamburg, 5	
Rotterdam, 4	
Coal Products (otherwise undes.) —	
Boulogne, 3 cs. 2 cks. 10 dms.	
Dyestuffs (otherwise undescribed)	
Ghent, 4 cks. 1 cs.	
Hamburg, 50	
Rotterdam, 1	
Manure —	
Boulogne, 120 bgs.	
Hamburg, 106	
Rotterdam, 400	
Pitch —	
Antwerp, 307 t.	

GRIMSBY.

Week ending July 21st.

Chemicals (otherwise undescribed)	
Antwerp, 4 cks. 9 pkgs.	
Dieppe, 1 cs. 6 34 bts.	
Hamburg, 20	
Coal Products (otherwise undes.) —	
Dieppe, 143 cks. 2 cs.	
Farina —	
Dieppe, 16 sks.	

PRICES CURRENT.

WEDNESDAY, AUGUST 1st, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids :—

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	&	10/6
Glacial	"	50/-		
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous	"	0	0	1 3/4
Oxalic	nett	0	0	3 3/4
Phosphoric, 1750°	"	0	1	0
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	"	5	10	0
(Pyrites, 168°)	"	3	0	0
(free from arsenic, 145°)	"	1	5	0
Sulphurous (solution) S.G. 1025	"	1	6	0
Tannic (pure)	per lb.	3	0	0
Tartaric	"	0	1	0
Arsenic, white powdered	nett	0	0	11
Alum (loose lump)	per ton	14	0	0
Alumina Sulphate (pure)	"	5	2	6
Aluminoferic	"	5	0	0
Aluminium	"	2	7	6
Ammonia, Anhydrous	per lb.	0	3	0
" 880=28° B.	"	0	1	4
" =24° B.	per lb.	0	0	3
" Carbonate	nett	0	0	2 3/4
" Muriate	"	0	0	3 3/4
" (sal-ammoniac) 1st & 2nd	per ton	22	10	0
" Nitrate	per cwt.	39/- &	37/-	
" Phosphate	per lb.	44	0	0
" Sulphate (grey) London	per lb.	0	0	10 3/4
(grey) Hull	per ton	13	15	0
Aniline Oil (pure)	"	13	15	0
Aniline Salt	per lb.	0	0	5 1/2
Antimony	"	0	0	5 1/4
" (tartar emetic)	per ton	32	0	0
" (golden sulphide)	per lb.	0	0	9 3/4
Barium Chloride	"	0	0	10
" Carbonate (native)	per ton	6	10	0
" Sulphate (native levigated)	"	3	10	0
Bleaching Powder, 35 %	"	45/-	to 75/-	
Liquor, 7 %	nett	7	10	0
Bisulphide of Carbon	"	3	10	0
Chromium Acetate (crystal)	"	11	15	0
Calcium Chloride	per lb.	0	0	6
China Clay (at Runcorn) in bulk	per ton	2	5	0
Cool Tar Products and Dyes:—	"	17/6	to 30/-	
Alizarine (artificial) 20 %	net	0	0	8
Magenta	per lb.	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit	0	1	1
Benzol, 90 % nominal	per gallon	0	0	11 1/2
50/90	"	0	1	0
Carbolic Acid (crystallised 40°)	per lb.	0	0	6 1/2
(crude 60°)	per gallon	0	1	7 1/2
Creosote (ordinary)	"	0	0	1 3/4
(filtered for Lucigen light)	"	0	0	3
Crude Naphtha 30 % @ 120° C.	"	0	0	5 1/2
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	12	6
Solvent Naphtha, 90 % at 160°	per gallon	0	1	4
Lucigen" and "Wells Oils	"	0	0	2 1/2
Copper	per ton	38	5	0
" Sulphate	"	14	5	0
" Oxide (copper scales)	"	39	5	0
Glycerine (crude)	"	15	0	0
(distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	4	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	10	15	0
" Litharge Flake (ex ship)	"	13	0	0
" Acetate (white	"	25	0	0
" brown	"	15	15	0
" Carbonate (white lead) pure	"	20	0	0
" Nitrate	"	19	10	0

Lime, Acetate (brown)	per ton	6	0	0
" " (grey)	"	10	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton.	17	0	0
" Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	"	17	15	0
" Borate	per cwt.	2	12	6
" Ore, 70%	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	2	2
Naphtha (Wood), Solvent	"	0	3	7
" Miscible, 60° O.P.	"	0	3	10
Oils:—				
Cotton-seed	per ton	21	0	0
Linseed	"	22	10	0
Petroleum, American	per gallon	0	0	5½
Stearine	per ton	26	10	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	9
Potassium (metal)	per oz.	0	3	7
" Bichromate	per lb.	0	0	4½
" Carbonate, 90% (ex ship)	per ton	16	15	0
" Chlorate	per lb.	0	0	6½
" Cyanide, 98%	"	0	2	3
" Hydrate (Caustic Potash) 80/85%	per ton	21	15	0
" " (Caustic Potash) 75/80%	"	20	0	0
" " (Caustic Potash) 70/75%	"	19	10	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	2	6
" Prussiate Yellow	per lb.	0	0	10½
" Sulphate, 90% (ex ship)	per ton	9	15	0
" Muriate, 80% (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	4¾
" Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
" Carb. (refined Soda-ash) 48%	per ton	4	17	6
" " (Caustic Soda-ash) 48%	"	4	2	6
" " (Carb. Soda-ash) 48%	"	4	0	0
" " (Alkali) 58%	"	3	15	0
" " (Soda Crystals)	"	2	10	0
" Acetate (ex-ship)	"	14	10	0
" Arseniate, 45%	"	11	0	0
" Chlorate	per lb.	0	0	7¾
" Borate (Borax)	net, per ton	22	0	0
" Bichromate	per lb.	0	0	3¾
" Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	lots	10	15	0
" " (74% Caustic Soda)	"	9	15	0
" " (70% Caustic Soda)	"	8	15	0
" " (60% Caustic Soda)	"	7	15	0
" " (60% Caustic Soda, cream) (f.o.b.)	"	7	12	6
" Bicarbonate	"	5	12	6
" Hyposulphite	"	5	10	0
" Manganate, 30%	"	16	0	0
" Nitrate (95% ex-ship Liverpool)	per cwt.	0	9	0
" Nitrite, 98%	per ton	29	10	0
" Phosphate	"	15	0	0
" Silicate (glass)	per ton	5	7	6
" " (liquid, 100° Tw.)	"	4	5	0
" Stannate, 40%	per cwt.	3	0	0
" Sulphate (Salt-cake)	per ton.	0	17	6
" " (Glauber's Salts)	"	1	5	0
" Sulphide	"	8	10	0
" Sulphite	"	5	9	6
Strontium Hydrate, 100%	"	8	10	0
Sulphocyanide Ammonium, 95%	per lb.	0	0	7½
" Barium, 95%	"	0	0	5
" Potassium	"	0	0	7½
Sulphur (Flowers)	per ton.	7	5	0
" (Roll Brimstone)	"	5	7	6
" Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26%)	"	2	7	6
Tallow	"	25	0	0
Tin Crystals	per lb.	0	0	6
English Ingots	"	69	0	0
Zinc (Spelter)	per ton	15	12	6
" Chloride (solution, 96° Tw.)	"	5	10	0

THE CHEMICAL TRADE JOURNAL

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

AERIAL LOCOMOTION.

THERE is nothing very new in the announcement that Mr. Maxim has produced another apparatus approaching a flying machine. He has done so before now, with more or less success. As a matter of fact, he seems to have advanced another step towards the solution of the difficulties which stand in the way of navigating the air, rather than completed a machine that can fly. All he claims is that he has made a machine which is able of itself to rise from the earth, and of its own accord carry a considerable burden some distance. A genuine flying machine must commence its flight from level ground, as does Mr. Maxim's machine. An apparatus which only enables people to lower themselves gently from a high altitude can hardly rank as a flying machine. It is merely an apparatus which all but neutralises the accelerating force of gravity. The flying machine proper will have to be able to overcome the force of gravity, and maintain its supremacy until such time as it is desirable to allow gravity to slightly gain the upper hand, and draw the machine back to the earth again. Under the present conditions of our knowledge about aerial flight, we are a long way from accomplishing all this. But because the accomplishment of an end is remote, it does not necessarily follow that it is unattainable. Torpedoes, search lights, phono and telautographs are all more or less recent creations, which in infancy received their full share of ridicule. Jules Verne was considered an amusing, somewhat light-headed babbler. Viewing his forecast in the light of to-day, however, one feels disposed to be rather more reserved in condemnation, and to give some credence to Tennyson's poetical picture of what aerial locomotion is to be developed into.

It would be foolish to deduce over sanguine deductions from the advance which Mr. Maxim is able to record; but it is equally foolish to endeavour to discount any development of this branch of science, by recounting the failures of the past, and insinuating a similar ending for the experiments of the present. Such experiments are no doubt attended with some danger, but so is making gunpowder, dynamite, and experimenting on the manufacture of Cordite. Because some years ago a Belgian was killed while trying to operate a so-called "flying machine,"—which was a misnomer—it does not follow that failure is bound to attend the development of Mr. Maxim's discovery. There is no analogy between the two cases. The former was a misguided step in the wrong direction; in the latter we have grasped the first link, albeit an insignificant one, in the chain which shall enable us eventually to bring within reaching distance a practical and safe aerial locomotive. Safe, that is to say, in the same sense that it is safe to be rushed down steep gradients at from 60 to 70 miles an hour, or whirled round curves such as the old Poulton curve, with only a flange an inch or two deep standing

between us and almost certain death. Men of culture scoffed at the proposal to produce light without a wick. Yet to-day we have even such a thing as a wickless lamp, as well as gas-light. Let therefore any discovery which brings us nearer to aerial locomotion be accorded the consideration it merits, even though it may be trifling.

COMPRESSED GAS CYLINDERS.

The fatal accident which occurred recently in New Zealand affords another instance of how important it is to exercise skilled knowledge upon everything which is intended to be used for containing gases under high pressure.

If the copper cylinder which was being used had been properly tested, that is to say, scientifically tested, before it was "tested" by inexperienced persons, the sad calamity recorded in our columns this week might have been averted.

There seems to have been nothing amiss with the cylinder in which the liquefied carbon dioxide had been originally stored; the accident rather would appear to have arisen through ignorance of the volume of gas which would be given off by a certain amount of liquefied carbon dioxide and the pressure it would exert when raised [from the very low temperature prevailing (owing to its conversion into the gaseous state) to the ordinary temperature of the atmosphere.

Regrettable as the incident is, it teaches an important lesson, which may be the means of avoiding similar accidents, which might prove even more disastrous.

RESTRAINTS OF TRADE.

Anent the decision of the House of Lords in the Maxim-Nordenfolt case, referred to last week, it may be of interest to our readers to know that the interpretation of the law, although very different from what it used to be, is even now an open question, and not altogether free from doubt.

Restraints of trade of any kind were originally considered bad. Later, however, the law came to be interpreted so that general restraints were bad, but partial restraints good, provided there was consideration, and that valuable: partial restraints having respect to space, persons, and mode.

As things are at present, however, there is no fixed rule by which even general restraints are to be condemned. The meanings of "public policy" are so varied and extensive that it is very hard to say what it is they may not be construed into. But the general view, according to the latest and most authoritative judgments, appears to be that all restraints are justifiable, provided they do not call for more than is reasonably required for the protection of the covenant. On this point the whole matter hangs; while the wide issue as to how far the interests of the covenant are in consonance with those of the commonwealth still remains open to argument.

ALDERSHOT SEWAGE.

According to the report of the Medical Officer of Health, the sanitary conditions at Aldershot are in a very bad state, and the arrangements for dealing with the sewage very inefficient.

It is not very surprising to learn that the sewage farm does not answer its purpose. Do they ever? Black ditches filled with noxious liquids which eventually pass muster as an effluent, constitute the stock arrangement, which serves to pollute our rivers under the pretext of purifying our sewage.

It is really alarming though to think what the War Office can be coming to. For the same body that takes such praiseworthy care to protect the lives of our troopers by insisting on their using a burning oil which flashes at 105°F, to have

allowed such an imminent source of danger to have sprung up, let alone exist, seems almost incredible. Had it been the Local Government Board, and the sufferers the public, the matter would have been simple enough; but to think that wide-awake, scientifically conducted department, should have allowed such a gross evil and menace to health to have grown to such proportions, may well cause eyes to open wide with surprise.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending July 21st, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'37	9'76	0'39	Nil.
South Metropolitan Gas Co.	6	16'8	9'75	0'51	Nil.
Commercial Gas Co. ..	2	16'5	8'65	0'6	Nil.

The supply for week ending July 28th was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'41	9'01	0'45	Nil.
South Metropolitan Gas Co.	6	16'78	9'91	0'61	Nil.
Commercial Gas Co. ..	2	16'45	8'75	0'5	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cb. ft. of gas on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

ALUMINIUM FOR DECORATING GLASS.

A DISCOVERY which may revolutionize the industries of engraving and designing on glass, porcelain, and pottery, has recently been made by M. C. Margot, of Geneva. M. Margot has found that aluminium possesses the singular property of leaving on glass, and on most articles having silica as a basis, a metallic deposit, especially when the metal is used as a pencil. The surface to be treated must be moist, but even breathing on them is sufficient to produce the most intricate designs, which no amount of washing, soaking or friction will cause to disappear again. The aluminium will attach itself to the surface of glass and porcelain in such a manner as to produce an even and perfect design, of metallic appearance, and so thick is the coating of the metal that when glass thus treated is held to the light the design itself appears quite opaque. The metallic design can be polished, and the effect thus obtained is very beautiful. The discovery is likely to prove valuable for the graduation of measures, thermometers, etc. The tenacity of the metal is so great that it seems to adhere as firmly as if one piece of metal had been joined to another by means of solder. By subjecting the glass to the action of hydrochloric acid or caustic potash the metal quickly disappears, though leaving the design distinct and intact, its lines presenting the appearance of corrosion. Experiments were made to ascertain whether other metals possessed similar properties, but only two others—viz., magnesium and cadmium—were deposited in an appreciable quantity. Magnesium deposits itself very readily if used as a pencil, and the presence on the surface to be treated of the slightest trace of moisture permits a design to be made on glass or pottery as easily as with a lead pencil on paper. Unfortunately, magnesium oxidises quickly, and the design disappears rapidly. Cadmium is dull and soon fades away. Magnesium and aluminium were tried on precious stones and found to leave a bright metallic deposit on the topaz, ruby, emerald and paste, but no effect was produced on true diamonds. This fact affords a valuable test for jewellers.

A COMPRESSED GAS CYLINDER EXPLOSION.

A FATAL accident has recently occurred at Auckland, N.Z. Though not exactly the same in detail as the explosion which occurred last year at Bradford, Yorks., still the circumstances show the importance of employing scientifically constructed apparatus when dealing with liquefied and compressed gases.

It appears that at the works of the New Zealand Freezing Company, Messrs. H. E. Kennedy and Mr. John W. Lusher, who held the New Zealand rights of the Volcanic Aerated Water Company, were explaining to Messrs. R. Menzies and S. L. Hirst, partners in the Thames and Te Aroha aerated water business, the working of the lately invented way of aerating water with the liquid carbonic acid obtained from springs in Germany, which is liquefied under 900lb. pressure and shot in cylinders to be exported to every part of the world. Mr. Drummond, who made the cylinder, was also present. The gentlemen had charged the copper cylinder (which contained some five gallons of water) with the gas at 150lbs. pressure, the experiment being carried out successfully, but it was found that there was a slight leakage. With the intention of finding out exactly where the gas was escaping, Messrs. Lusher and Kennedy took up the cylinder, each taking a handle, and plunged it in a barrel of cold water. The effect was instantaneous, the receptacle bursting with a loud explosion. Mr. Lusher was killed instantly, and Mr. Kennedy succumbed a few minutes later.

Mr. H. E. Kennedy went to Auckland from Sydney in February last, to start a branch of the Volcanic Aerated Water Company in Auckland, and Mr. Lusher joined him in partnership.

Messrs. Kennedy and Lusher had made arrangements with the Northern Club and several hotels to have an apparatus and one of the machines, which are in use in many parts of the world, erected on their premises for the purpose of making and dispensing soda water, lemonade, etc. The firm had two patents, the first claiming to be an improved process and means for the aeration, bottling, and discharge of beer or other liquids, and the second a patent for maintaining a constant pressure in storage vessels that contain aerated liquids. The firm were unable to get cylinders from Sydney, and Messrs. Drummond and Son were deputed to make one, and it was this cylinder that was being tested when the distressing accident occurred.

It appears from the statement of Mr. George Drummond (of the firm of R. Drummond and Sons, copper-smiths, etc., of Albert-street), who was an eye-witness to the terrible accident, and who narrowly escaped, that Mr. Drummond's firm made the copper cylinder, which weighed about 65lb. The cylinder had been made to the order of Messrs. Kennedy and Lusher, and after its completion was connected with the city main at Drummond and Co.'s premises for about a fortnight. The firm themselves did not guarantee any pressure, but merely made the cylinder as strong as possible and according to the order of the firm. Mr. Drummond first put the cylinder into a back room of the Freezing Company's premises, and afterwards it was brought into a room behind the office, the scene of the accident. Messrs. Kennedy and Lusher then proceeded to test the cylinder, while Messrs. Menzies, Hirst, and Drummond stood close by, the five men being only a few feet distant from each other. The victims of the occurrence were in the centre of the group. Messrs. Kennedy and Lusher put the cylinder into a barrel of water, and as soon as the bottom touched the fluid, it blew clean up like a shot from a gun. The bottom part of the cylinder stopped in the barrel, and the upper portion with the two valves (weighing about 1½lb. each) shot through the ceiling. Mr. Drummond says that he was dazed for the time with the pressure from the explosion, but the first thing he saw was Messrs. Kennedy and Lusher lying on the floor, but he did not know whether they were dead or alive. Drummond then rushed up to the office of the Freezing Company upstairs and told them what had happened, and a doctor was telephoned for.

Mr. R. Menzies, one of the other three who were in the room at the time of the explosion, says that a hitch occurred in the carrying out of the experiment, and Kennedy, who thought that it was owing to a leakage in the cylinder, was putting the latter into a barrel of cold water in order to discover the exact position of the leak by noticing from what part the gas would bubble up. Lusher was standing by assisting in the operation. The two caught hold of the cylinder and dipped it into the water. As soon as the cylinder touched the cold water the fatal explosion occurred. Mr. Menzies and the other two gentlemen were standing within a yard of the barrel. He had turned his attention from the barrel for an instant, and on looking round as the deafening noise resounded through the room, saw Lusher and Kennedy falling heavily to the floor. A large hole had been made in the roof, through which a portion of the cylinder had passed. Mr. Menzies himself was so stunned by the force of the explosion that it was not till after a few moments that he could realise what had occurred. He says it was nothing short of a miracle how the rest of them escaped from meeting with the same fate as their companions.

A short time previously Mr. Geo. Cozens, of High-street, was approached by the deceased Mr. Kennedy, who was desirous of Mr. Cozens entering into the business with him in connection with the patent. Mr. Kennedy stated to Mr. Cozens that according to the German test of tubes a temperature of 250 degs. would be needed to cause a pressure of 3,750lb. per square inch. Mr. Cozens, being distrustful of the patent, and the strength of the tubes, looked up Regnault's tables of cylinder tests, and found that 32 degs. Fahrenheit (freezing point) represented a pressure of 520lb. to the square inch, and so on until 122 degs. of heat represented a pressure of 1,649lb. to the square inch. Mr. Cozens declined to go into the venture, assuring Mr. Kennedy that he believed there was grave risk of accident with a patent as proposed by the latter, and saying he considered the risk was too much. Some defect might cause a terrible explosion at any time. As the unfortunate sequel proves, Mr. Cozens' misgivings were only too well verified.

THE CAUSE OF THE EXPLOSION.

With regard to the cause of the explosion, Professor Brown (of the Auckland University) says: The explosion was probably due in the first place to a portion of liquid carbonic acid escaping into the copper cylinder, where it would partially volatilise, becoming very cold, and, on the cylinder being put into the barrel, the liquid carbonic acid would give off more carbon dioxide gas, owing to the higher temperature of the water, and so rapidly increase the pressure. The leaky condition of the cylinder showed plainly that it was taxed to its utmost strength, and the increase of pressure consequent on dipping it into the water would be sufficient to cause the explosion.

Parliamentary Gossipings.

THE JOURNAL OF AGRICULTURE.

In the House of Commons, this week, in reply to Mr. Henniker Heaton, Mr. Gardner said the financial arrangements sanctioned in the case of the proposed quarterly journal of the Board of Agriculture include the acceptance of a certain number of advertisements, but the Treasury have stipulated (1) that advertisements shall be charged at the full market rate, and (2) that no more of them shall be accepted than will cover the cost of publication without leaving a profit. We shall, of course, work strictly within the limitations just prescribed.

ALDERSHOT SEWAGE.

Last week, Mr. Pierpoint asked the Secretary of State for War whether his attention had been drawn to a report presented to the Surrey County Council, on July 31st, by the medical officer of the county, in which it was stated that the spot where the sewage of Aldershot camp was supposed to be disposed of was, instead of being a sewage farm, a sewage marsh, where pools of stagnant putrid sewage gave rise to poisonous exhalations, which, if the cholera infection were introduced, would soon prove to be of a most deadly character; and whether, if the statement was founded on fact, he would take the necessary measures to get rid of the nuisance.

Mr. Campbell-Bannerman: The report referred to has been received by the War Office. The question of removing the sewage farm is under consideration, and steps have been taken to co-operate with the Local Board of Health of Aldershot town in the disposal of sewage at a place sufficiently remote from habitations.

THE MANUFACTURE OF CORDITE.

Answering questions by Sir W. Hart Dyke and Mr. Hanbury, Mr. Woodall said that no contracts had as yet actually been entered into with private firms for the manufacture of cordite. The policy of the Government was to keep alive as fully as possible the sources of private supply, and with that view a considerable proportion of the ultimate demand would be met by private firms. At the same time a grave responsibility would rest on the Government if they were to encourage numerous firms to lay down plant and machinery. Therefore, while accepting the general principle, the War Department would act as prudently as possible, and would probably content themselves with placing contracts with two or at most three firms.

PROGRESS OF BILLS.

The Home Secretary moved the resumption of the adjourned debate on the second reading of the Coal Mines (Check Weigher) Bill, but objection being taken the order was deferred.

The Patent Agents Registration Bill and the Elementary Education (Exemption from School Attendance) Bill have been withdrawn.

Mr. Lees Knowles moved the resumption of the Plumbers' Regulation Bill, but Mr. Healy objected, and the order was deferred.

Laboratory Notes.

ANALYTICAL, PHYSICAL, AND TECHNICAL.

THE DETECTION OF HYDROCHLORIC ACID.

This is not an easy matter in the presence of hydriodic and hydrobromic acids. Messrs. Villiers and Fayolle, however, propose a method which is founded upon the difference of the action of the halogens upon an acid solution of aniline, iodine producing no apparent reaction, or at least giving a colourless and soluble substitution product, bromine yielding an insoluble substitution product, perfectly white, whilst chlorine forms coloured oxidation products, black and insoluble, if it is in considerable quantity, violet-red in heat, blue in cold, and turning to red after some time in the contrary case.

The sensitiveness of the reagent depends on the acidity of the solution; a solution not acid giving no results, whilst a large quantity of a mineral acid takes no colouration or is quickly decolourised by the heating. It is preferable to use acetic acid, which does not decolourise on heating.

The following is the formula adopted:—

Saturated aqueous solution of colourless aniline 400 c.c.
Glacial acetic acid 100 "

This liquid may be preserved indefinitely in yellow bottles without becoming coloured.

The liquid under examination is brought by evaporation or by the addition of water to the volume of 10 c.c. and placed in a flask. We add 5 c.c. of a mixture of equal volumes of sulphuric acid and water, then 10 c.c. of a saturated solution of potassium permanganate, and heat gently, turning the gases into 3 to 5 c.c. of the reagent contained in a test-tube immersed in cold water. In the absence of bromine and iodine we obtain thus with 0.1 m. gram. of hydrochloric acid a blue colouration which is transformed (slowly in the cold, but rapidly in heat) into a more distinct rose colour.

Hydriodic acid alone gives no reaction. Hydrobromic acid gives a colourless precipitate. In the presence of all three acids the chloride gives a reaction ranging from a black precipitate to a faint rose tint, enabling one to detect hydrochloric acid in presence of the other hydracids, even in slight proportions. Thus we may recognise the presence of chlorides in a great number of commercial bromides and iodides. In like manner, on adding at once bromine-water to the reagent the colour of the precipitate obtained can show the presence of chlorine in the bromine, if the former is in a sufficient proportion, as it is often the case in commercial bromine.

The formation of bromine chloride, however, largely masks the reaction. To overcome this Messrs. Villiers and Fayolle, in a subsequent paper, have proposed to separate the hydracids by silver nitrate. The precipitate is washed and then conveyed into a small flask, into which, after having decanted the liquid, there are added 10 c.c. of water and 1 c.c. of pure ammonia. The flask is shaken for some minutes if it is required to find considerable quantities of hydrochloric acid. If traces have to be sought for, the ammonia is left for some hours in contact with the precipitate. At this dilution the ammonia does not dissolve appreciably the silver bromide, and has no action at all upon the silver iodide. On the contrary, the chloride dissolves to a considerable extent (even totally if very little hydrochloric acid is present), especially if we wait a sufficient time so that the bromide which is dissolved at first may be displaced by the chloride. It is now required to reproduce the hydrochloric acid in the ammoniacal liquid. Zinc and sulphuric acid give bad results, and small quantities of chlorine may disappear entirely whilst the zinc is dissolving, probably from the presence of some impurity in the zinc. It is preferable after having filtered the ammoniacal liquid to heat to ebullition until the ammonia has entirely disappeared, and to add an excess of a solution of sulphuretted hydrogen. We then boil again so as to reduce the volume of the liquid to about 10 c.c., and filter the liquid into a flask. The operation is completed as previously directed.

In the case of an analysis the differences of colorations will readily enable us to distinguish if we have to do with notable quantities of hydrochloric acid or with mere traces. The application of this process pre-supposes the absence of hydrocyanic acid which gives a precipitate of silver cyanide more soluble in the ammonia than the chloride, and which in the further treatment may mask, partly or totally, the chlorine liberated by the permanganate, producing hydrochloric acid and cyanogen chloride. To obviate this cause of error the hydrocyanic acid may be expelled by evaporation along with sulphuric acid until vapors of sulphuric acid begin to appear. The retort is allowed to cool, water is added, and the liquid is distilled afresh. The distillates are united and partially evaporated. By this test 0.001 parts of HCl can be detected with the presence of 0.015 of HI and 0.05 of HBr.

SODIUM PEROXIDE IN ANALYSIS.

According to the researches of Poleck, sodium peroxide reacts in the same manner as a chemical reagent as hydrogen and barium peroxides, only more energetically.

Sodium peroxide precipitates ferric hydroxide from the ferrous and ferric salts, but manganese peroxide is at once thrown down from the salts of manganese and cobaltic oxide from those of cobalt; permanganic acid is reduced to manganese peroxide, chromic oxide is oxidised to chromic acid.

With potassium ferricyanide sodium peroxide behaves like the corresponding hydrogen and barium compound, reducing the ferricyanide to ferrocyanide. This behaviour is therefore parallel to Prof. Kassner's method for the volumetric determination of this substance. Thus in the sodium peroxide employed in this investigation there were found 83.62 per cent. of the pure compound.

The separation and quantitative determination of iron on the one hand and of manganese and chrome on the other is easily and completely effected in the wet way, and gives good results. Iron is precipitated as ferric hydroxide, manganese as peroxide, whilst chrome passes into solution as chromic acid, which is then reduced by means of alcohol and the chrome weighed as chromic oxide.

The analysis and separation of tin, antimony, and arsenic is very easily effected in the sulphur compounds precipitated by sulphuretted hydrogen and then dissolved in ammonium sulphide. The latter solution is either evaporated down in order to remove the excess of ammonium sulphide, or the metallic sulphides are once more precipitated. They are then covered with water in a tall beaker and sodium peroxide is added in small quantities until the colour of the sulphides has entirely disappeared, which takes place in the course of a few minutes. The oxidation of the metals and of the sulphur is complete. The oxygen compounds of the metals are separated by known methods.

This method of oxidising the metallic sulphides has the advantage over that by nitric acid, as in toxicological cases it admits at once of the use of the Marsh apparatus.

The oxidation of carbon compounds in alcoholic solution seems to promise good results, as alcohol is not attacked by sodium peroxide, whilst ether is at once ignited.

CREAM OF TARTAR IN BAKING POWDER.

The special suitability of cream of tartar for baking powder purposes rests on its property of being only sparingly soluble in cold water, but quite readily so in hot water, the effect of which is that the carbon dioxide is developed in the right amounts at the right time; exactly the same result is obtained in tartar substitutes by means of the secondary reaction with calcium sulphate.

The calcium sulphate in some tartar substitutes cannot, therefore, be regarded as an adulterant, neither is it the result of carelessness on the part of the manufacturer; but it purposely forms part of the substance, and has an important, and for some uses, quite an essential function.

Without treating the matter from a hygienic point of view, but, inasmuch as calcium sulphate seems to be something of a bugbear to many health officers and chemists, it may be pointed out that a greater part at any rate of this substance is actually converted in the baking process into sodium sulphate, and further, according to Wadman, that in the small amounts used in practical baking the resulting dose of the latter salt would be extremely small.

THE INFLUENCE OF CO₂ ON FLAMES.

From experiments made with naked flames results have been obtained showing that the flames of liquid hydrocarbons burnt from wicks require a proportion of carbon dioxide to air, averaging about 15 per cent. of the mixture for the extinction of ordinary flames. A coal-gas flame burnt from a jet requires as much as 33 per cent. of carbon dioxide in the air to extinguish it; while the hydrogen flame requires no less than 58 per cent. It is of interest to note that the flame of fire-damp is easily extinguished, requiring the presence of only 10 per cent of the extinctive gas.

A SALT SPRING WATER.

The following shows the composition of a saline spring at Poiana, near Prahova, Bucharest, where mineral spring waters for medicinal purposes are being examined:—

Specific gravity at 17.5°C = 1.1903.

Residue at 180°C from a litre of water 249.0 grams.

Sodium Chloride	..	..	..	..	243.549
Potassium "	..	..	..	..	0.009
Magnesium "	..	..	..	..	0.144
" Sulphate	..	..	..	..	0.881
Calcium "	..	..	..	..	3.651
" Carbonate	..	..	..	..	0.430
Silica	..	..	..	..	0.057
Ferrous Carbonate	..	..	..	..	traces

Total salts as found 248.721

Agricultural Notes.

MANURING COTTON PLANTS.

TAKING into consideration the constituents of the various fertilizers employed, Mr. McBryde recommends the following mixtures in preparing manures for the cotton plant:—Acid phosphate 420lbs., nitrate of soda 125lbs., kainit 125lbs. Acid phosphate 370lbs., dried blood 165lbs., cotton seed hull ash 60lbs. Stable manure 2 tons., acid phosphate 330lbs., nitrate of soda 20lbs. Acid phosphate 350lbs., cotton seed meal 280lbs., muriate of potash 20lbs. Acid phosphate 350lbs., cotton seed 800lbs., kainit 40lbs. Stable manure 2 tons., acid phosphate 330lbs., cotton seed meal 40lbs.

An ammoniated acid phosphate containing 10 per cent. phosphoric acid (of which at least 8 per cent. should be available), four and two-thirds per cent. ammonia, and three per cent. potash, applied at the rate of 500lbs. per acre would supply these constituents in about the same proportion and amounts as the above mixtures.

CHEMICALS AS INSECTICIDES.

According to Professor Long, the agricultural station of the Pas de Calais has just published some particulars with regard to the materials used for the destruction of insects, from which it appears that insecticides are often used which really have no destructive power over insects of various kinds. He says some of these products, manifestly efficacious, not only destroy insects but the cultivated plants upon which they thrive; others, he says, are extremely dear; while again, others, deadly to an insect of one order, have no effect upon those of another. Some insects, he remarks, have a resisting force which is really prodigious in face of the means of destruction which are commonly opposed to them. He gives an instance in which the larvæ of a destructive insect were plunged in pure sulphide of carbon, but after an immersion of five minutes the little creatures, having been again exposed to the air, acquired their first vigour. M. Huet has made some experiments in order to ascertain the resisting power of certain caterpillars in the presence of poisonous matters. A single drop was placed upon the head of the insect in each case. A solution of alum produced no effect whatever; sulphide of calcium produced no effect; a solution of lime was not fatal in every case; nicotine failed to destroy the insect; while benzine and petroleum were not always effective. Other substances were tried, such as phenic acid, turpentine, and sulphate of copper, all of which produced negative results. M. Huet's experiments have been conducted with caterpillars of several kinds, but particularly with those which live upon cabbage leaves, and the results were almost always the same. The writer says that a universal insecticide does not in reality exist, for if petroleum, for example, kills a caterpillar of one variety it is found, on the contrary, to be without effect upon those of another variety. Caterpillars of the *Lepidoptera*, the natural order which includes the butterflies and the moths, have a greater power of resistance than the larvæ of the *Coleoptera*, the natural order to which the beetle belongs. These facts are all of supreme interest, and they will suggest to the cultivator, whether farmer or gardener, the importance of recognising that reliance cannot be placed upon any specific destroyer of dangerous insects, and more especially that prevention is better than cure.

THE PREVENTION OF POTATO DISEASE.

The report of the Irish Land Commission on experiments conducted last year in the counties of Cork and Meath upon the prevention of potato disease states that of the two mixtures employed one was made up of 2lb. copper sulphate, 1lb. well-burned unslaked lime, and ten gallons of water; and the other of 1½lb. copper sulphate and ¾lb. unslaked lime to the ten gallons of water. The first sprayings took place at the latter end of June, and the second, when applied, about one month later. The quantity of *bouillie bordelaise* per acre varied between 100 and 160 gallons, according to the luxuriance of the foliage to be treated. When the crops were dug at the end of September, the haulms on the unsprayed plots were seen to be withered and dried up, and on the plots which had been dressed only once the haulm was in almost the same condition. On the plots which had been sprayed twice, however, the haulm was still green and succulent, though the leaves had withered away. There was no appreciable difference in the haulms according as the plots were sprayed from above only, or from below only, or from both above and below. On all of the sprayed plots there was a notable absence of weeds as compared with the plots not sprayed; this is attributed to the greater luxuriance and continuation of growth of the haulms and foliage on the sprayed plots, the weeds thereby being smothered and suppressed. As regards the strength of mixture, the best results were obtained with the mixture containing 2lb. copper sulphate in 21 cases and with the mixture containing 1½lb. copper sulphate in 15 cases. At the time when Strawson's horse-spraying machine was used in the Meath trials the foliage

had attained its full growth and had met across the drills; nevertheless there was very little difficulty in getting through the crop, and the opinion is expressed that this machine is capable of being made a very serviceable implement.

It would appear that in the case of the Champion potato—the variety chiefly grown in Ireland—it is desirable to use the mixture containing 2lb. copper sulphate and to apply the dressing twice at least. Probably the mixture containing 1½lb. sulphate would be the more suitable for those varieties of which the foliage is more tender than that of the Champion, though in no case was there any evidence that the foliage had been injured by the strength of the mixture. The results from the nine complete series of experiments show that the average increase of yield of sound tubers on the sprayed as compared with the unsprayed plots was 2 tons 13cwt. 6lb. per statute acre, and the average net gain £4. 8s. 2d. per statute acre. In the case of six of the 72 sprayed plots net losses varying from 35s. to 1s. 1½d. per statute acre were recorded; in four of these instances the plots were those which had been sprayed once only, all the other sprayed plots in the same series showing marked gains as compared with the results on the untreated plots.

The conclusion seems to be established that it is generally the safest course to apply the dressing twice—the first time shortly before the earliest period at which the disease is likely to appear in the district, and again about three weeks later. Further, that if the dressing is properly sprayed from below only it will prove thoroughly efficacious, but that it would perhaps be generally advisable to spray partly from above and partly from below.

LEAD POISONING OF HORSES BY WATER.

Professor Axe records a peculiar instance of lead poisoning, which shows how great is the care to be taken to prevent the water supply, even of animals, being subjected to extraneous contamination. A valuable stud of horses was attacked by a disease, the symptoms of which pointed to lead poisoning. A careful investigation of the food proving satisfactory, left only the water for closer investigation. Yet how this could become contaminated and still escape detection was a question to which no answer was forthcoming. It appears that during and antecedent to the outbreak of the disease the water supplied to the stud was rain water, which had been collected from the roofs of stables and conducted by iron spouting into a large wooden tank. The place being in the country and far away from any source of atmospheric pollution, such as might exist in proximity with smelting works, it was taken for granted that the rain when it reached the buildings was in a pure condition, and that any contamination, pernicious or otherwise, which it might have undergone had occurred either on the buildings or in the tank, or in the conduits which conveyed it from one to the other. Inasmuch as the latter consisted of iron piping, in which no sort of lead had been employed either in fitting or repairs, the idea of finding any explanation of the outbreak here was soon abandoned. An examination of the roofs revealed the existence of three or four short lengths of lead guttering, and this for a moment claimed consideration, only, however, to be set aside as inadequate by itself to cause the serious pollution which must have existed to give rise to such fatal results.

The tank had been emptied and thoroughly cleansed, and this appeared to have been sufficient to disarm suspicion as to its possible concern in the outbreak, and it was asserted again and again that the tank was free from harm, and could have no possible connection with the disease. It was stated that it had at no time been repaired, and, being constructed of wood, it could not, therefore, convey lead to the water. Nevertheless, it was urged that, if the diagnosis was a correct one, and the conclusions as to the insufficiency of pollution from any other source were warranted by the facts, then the offending matter must be found in the tank. The tank was therefore entered and submitted to most careful examination in every part, with the result that a large quantity of putty-like matter was found in the joinings of the vessel, and this on analysis was subsequently proved to be mainly composed of white lead. The sedimentary matter which had some time previously been removed from the tank was now sought after in an adjoining copse and recovered. This was found to consist of a large accumulation of decomposing leaves which had been washed from the roofs of the stables, together with a quantity of black vegetable sludge. Here, again, analysis brought to light lead in such amount that beads of the metal of considerable size could be readily obtained from it.

Thus ended the mystery which for nearly four years had hung over and impoverished this unfortunate stud. It is not to be understood that the water in this case would have proved harmless in the absence of decomposing vegetable matter, but there can hardly be a doubt that by its presence the solvent quality of the water was greatly intensified.

THE ROSARIO NITRATE COMPANY, LIMITED.—The directors of this company have declared an interim dividend on the share capital of the company of 5 per cent. (free of income tax) on account of the financial year ending 30th September, 1894.

THE BRITISH ASSOCIATION.

THE MARQUIS OF SALISBURY'S ADDRESS.

THE annual meeting of this Association opened on Wednesday, at Oxford. About 1,900 members were able to hear the address. Dr. Burdon Sanderson, the retiring president, in a few suitable words referred to his work during the past year, and called upon the president-elect, the Marquis of Salisbury, to deliver his presidential address, which his Lordship proceeded to do. In his capacity of Chancellor of the Oxford University he delivered his address in the Chancellor's robe.

The introductory portion of the address dealt with the spirit of the old and new learning, the speaker referring to the ignorance under which we still laboured in spite of the advances which have been made. Proceeding, he said in regard to

THE ORIGIN OF THE ELEMENTS.

Of the scientific enigmas which still, at the end of the 19th century, defy solution, the nature and origin of what are called the elements is the most notable. It is not, perhaps, easy to give a precise logical reason for the feeling that the existence of our 65 elements is a strange anomaly, and conceals some much simpler state of facts. But the conviction is irresistible. We cannot conceive, on any possible doctrine of cosmogony, how these 65 elements came into existence. A third of them form the substance of this planet. Another third are useful, but somewhat rare. The remaining third are curiosities scattered haphazard, but very scantily, over the globe, with no other apparent function but to provide occupation for the collector and the chemist. Some of them are so like each other, that only a chemist can tell them apart; others differ immeasurably from each other in every conceivable particular. In cohesion, in weight, in conductivity, in melting point, in chemical proclivities they vary in every degree. They seem to have as much relation to each other as the pebbles on a sea beach, or the contents of an ancient lumber room. Whether you believe that Creation was the work of design, or of inconscient law, it is equally difficult to imagine how this random collection of dissimilar materials came together. Many have been the attempts to solve this enigma; but up till now they have left it more impenetrable than before. When the immortal discovery of Dalton established that the atoms of each of these elements have a special weight of their own, and that consequently they combine in fixed ponderable proportions from which they never depart, it renewed the hope that some common origin of the elements was in sight. The theory was advanced that all these weights were multiples of the weight of hydrogen—in other words, that each elementary atom was only a greater or a smaller number of hydrogen atoms compacted by some strange machinery into one. The most elaborate analyses, conducted by chemists of the highest eminence—conspicuously by the illustrious Stas—were directed to the question whether there was any trace in fact of the theoretic idea that the atoms of each element consist of so many atoms or even of so many half-atoms of hydrogen. But the reply of the laboratories has always been clear and certain—that there is not in the facts the faintest foundation for such a theory.

SPECTRAL ANALYSIS.

Then came the discovery of the spectral analysis, and men thought that with an instrument of such inconceivable delicacy we should at last find out something as to the nature of the atom. The result has been wholly disappointing. Spectral analysis in the hands of Dr. Huggins and Mr. Lockyer and others has taught us things of which the world little expected to be told. We have been enabled to measure the speed with which clouds of blazing hydrogen course across the surface of the sun; we have learnt the pace—the fabulous pace—at which the most familiar stars have been for ages approaching to or receding from our planet, without apparently affecting the proportions of the patterns which so far as historical record goes back, they have always delineated on the evening sky. We have received some information about the elementary atoms themselves. We have learnt that each sort of atom when heated strikes upon the ether a vibration, or set of vibrations, whose rate is all its own; and that no one atom or combination of atoms in producing its own spectrum encroaches even to the extent of a single line upon the spectrum that is peculiar to its neighbour. We have learnt that the elements which exist in the stars, and specially in the sun, are mainly those with which we are familiar upon earth. There are a few lines in excess to which we can give no terrestrial name; and there are some still more puzzling gaps in our list. It is a great aggravation of the mystery which besets the question of the elements that among the lines which are absent from the spectrum of the sun those of nitrogen and oxygen stand first. Oxygen constitutes the largest portion of the solid and liquid substance of our planet, so far as we know it; and nitrogen is very far the predominant constituent of our atmosphere. If the earth is a detached bit whirled off the mass of the sun, as cosmogonists love to tell us, how comes it that in leaving the sun we cleaned

him out so completely of his nitrogen and oxygen that not a trace of these gases remains behind to be discovered even by the sensitive vision of the spectroscopist? All these things the discovery of spectrum analysis has added to our knowledge; but it has left us as ignorant as ever as to the nature of the capricious differences which separate the atoms from each other, or the cause to which those differences are due.

THE PERIODIC LAW. "EVOLUTION" NO HELP.

In the last few years the same enigma has been approached from another point of view by Professor Mendeléeff. The periodic law which he has discovered reflects on him all the honour that can be earned by ingenious, laborious, and successful research. He has shown that this perplexing list of elements can be divided into families of about seven, speaking very roughly; that those families all resemble each other in this, that as to weight, volume, heat, and laws of combination the members of each family are ranked among themselves in obedience to the same rule. Each family differs from the others; but each internally is constructed upon the same plan. It was a strange discovery—strangest of all in its manifest defects. For in the plan of his families there were blanks left; places not filled up because the properly-constituted elements required according to his theory had not been found to fill them. For the moment their absence seemed a weakness in the professor's idea, and gave an arbitrary aspect to his scheme. But the weakness was turned into strength when, to the astonishment of the scientific world, three of the elements which were missing made their appearance in answer to his call. He had described beforehand the qualities they ought to have; and gallium, germanium, and scandium, when they were discovered shortly after the publication of his theory, were found to be duly clothed with the qualities he required in each. This remarkable confirmation has left Mendeléeff's periodic law in an unassailable position. But it has rather thickened than dissipated the mystery which hangs over the elements.

The discovery of these co-ordinate families dimly points to some identical origin, without suggesting the method of their genesis or the nature of their common parentage. If they were organic beings all our difficulties would be solved by muttering the comfortable word "evolution" (laughter)—one of those indefinite words from time to time vouchsafed to humanity, which have the gift of alleviating so many perplexities and masking so many gaps in our knowledge. But the families of elementary atoms do not breed (laughter); and we cannot therefore ascribe their ordered difference to accidental variations perpetuated by heredity under the influence of natural selection. The rarity of iodine, and the abundance of its sister, chlorine, cannot be attributed to the survival of the fittest in the struggle for existence. We cannot account for the minute difference which persistently distinguishes nickel from cobalt by ascribing it to the recent inheritance by one of them of an advantageous variation from the parent stock.

The remainder of the address dealt with other problems of elementary atoms, and the inscrutability of the ether. Tribute was paid to the advance made in antiseptic surgery and inoculation. Darwin's theories of evolution and natural selection were also dealt with at some length, and contrasted with the opinions of Professor Weismann, a regretful mention of the untimely death of Professor Romanes being made in passing. In conclusion, Lord Salisbury said he preferred to shelter himself when speaking on these matters behind the words of Lord Kelvin first uttered 20 years ago from the very chair he occupied, in which Lord Kelvin expressed the conviction "that the hypothesis of natural selection does not contain the true theory of evolution, if evolution there has been in biology." The theory of design has been overlooked, though it keeps irresistibly thrusting proofs upon us to teach us "that all living things depend upon one everlasting Creator and Ruler." (Loud applause.)

In moving a vote of thanks, Lord Kelvin said there was nothing the Marquis had said which did not suggest matter for thought. He had done much to dispel a popular illusion, namely, that they, the day labourers of science, had no mysteries. They were, on the contrary, surrounded by mysteries.

Professor Huxley, in seconding the resolution, congratulated the British Association on finding such excellent quarters after nearly forty years' wandering in the wilderness. Time was when in their sectional meetings they were much more concerned with mutual recrimination than with mutual adulation. There was very much in Lord Salisbury's address which he admired vastly more than he could possibly have imagined. Much met with his entire concurrence, as one of those persons who for many years past had made a pretty free use of "that comfortable word evolution." Thirty-four years ago a considerable discussion took place in one of the sectional meetings upon what people called the Darwinian question, but which, upon that occasion, was not the Darwinian question, but a very much deeper question lying beneath it, namely, the question of evolution. He (Professor Huxley) and those who thought with him were regarded as being persons desirous of sapping the foundations of religion and morality. It was more than suggested that the pedigree

of some of them towards the lower animal formations was much shorter than perhaps they imagined. In the 34 years that had passed opinion had at any rate undergone a rapid evolution. Darwinism was not evolution, neither was Spencerism or Weismannism evolution, but all these were built upon the fundamental doctrine to which Lord Salisbury had put the seal of his authority. If the Darwinian hypothesis were swept away evolution would still stand where it was. The fundamental fact was a historical one.

Lord Salisbury having briefly acknowledged the vote, the proceedings ended.

THE EXTRACTION OF SULPHOCYANIDES FROM AMMONIA SALTS.

THE presence of sulphocyanides in sulphate of ammonia is very prejudicial to its use for agricultural purposes. To remove these compounds R. Blochmann has patented a process which is based upon the use of iron salts and chlorine. Iron salts have long been used to remove cyanides and sulphides, but they have no action on the sulphocyanides. In his process the patentee acts on gas liquor with a ferrous salt, and separates the precipitated sulphide of iron by subsidence or filtration. The liquor is then neutralised with hydrochloric or sulphuric acid, and returned to the scrubbers. This is repeated until the liquor becomes charged with about 8 or 10% of ammonia, corresponding to 34 or 40% of sulphate. The liquor is then again finally treated with the iron salt to remove the cyanides, and the sulphocyanides removed by treatment with chlorine in the form of chlorine water, or hypochlorites. The action which takes place results in the liberation of hydrogen which is passed into the gas mains again. The precipitated sulphide of iron is exposed to the air, whereby it is re-oxidized to basic persulphate of iron.

COLOUR REACTIONS IN THE ANALYSIS OF OILS AND FATS.

THE following is an abstract of a paper on this subject by Dr. Lewkowitsch. The paper only proposes to deal with certain colour reactions produced by the following four reagents, sulphuric acid, chlorine gas, phosphoric acid, and phospho-molybdic acid, the other group-reagents, as caustic alkalis, nitric acid, &c., being absolutely valueless for purposes of classification.

The result of the paper is to show that the reactions of these four reagents are likewise unreliable.

Sulphuric Acid.—As a reagent for distinguishing between drying oils, semi-drying, and non-drying sulphuric acid is of some use, but discrimination between semi-drying and non-drying oils, however, is more difficult, and indeed scarcely possible in every case.

The better the drying oil the darker the blue colour developed.

In the case of the liver oils, the blue and purple colorations, due to the presence of cholesterol and colouring principles—lipochromes—are very characteristic; they are best observed if the oil be dissolved in carbon bisulphide previous to being treated with acid. But it should be pointed out that upon rancidity setting in, the chromatic principles undergo a change preventing the appearance of the blue colour, purple and red colorations being produced instead. Thus, rancid cod-liver oils, such as "cod oil" and "coast cod oil," not always show the fine blue colour a pure medicinal cod-liver oil will give. On the other hand, blubber oils will also give occasionally the blue colour, e.g., seal oil, so that it would not be safe to assume in such cases a—perhaps accidental—admixture with liver oil.

The sulphuric acid colour test may, therefore, only be used for purposes of preliminary information, and even then its indications should be interpreted with the greatest caution. It will be found far better to substitute for it the iodine absorption method, which, although entailing more work, furnishes an infallible means for classifying oils and fats.

Chlorine Gas.—The blackening said to be produced in animal oils (with the exception of foot oils from terrestrial animals) as opposed to the inertness of vegetable oils, is also, according to the experimental data of the author, unreliable. Being in possession of a large number of oils and fats of undoubted genuineness (many of them had been prepared in the laboratory, especially the oils and fats from terrestrial animals, whereas the others were obtained from absolutely reliable sources as genuine), the author treated most of them with chlorine gas under exactly the same conditions. The results indicate that the black colour test is useless for marine animal oil, it being affected by the purity and rancidity of the oils. Pure cod-liver oil and seal oil change so slightly when compared with cotton-seed, mustard-seed, and sesame oils under certain conditions, that they might by this test be classed as vegetable instead of animal oils. On the other hand, horses' foot oil

(rendered some years ago by the author), became almost black. The chlorine test must, therefore, be struck out of the list of special reagents for marine animal oils.

Phosphoric Acid as a test for marine animal oils has already been objected to, as resin oil produces a similar red colouration. The author further himself in an elaborate table shows that no reliance can be placed on this reaction, as the acid seems only to indicate impurities in oils that can be eliminated by refining, or products of oxidation, or rancidity.

Phospho-Molybdic Acid.—This reagent as proposed by Welman has been recommended by many well-known oil experts. Its very sensitiveness, however, is an objection, minute traces of reducing substances in the ammonia used leading to errors. By means of an exhaustive table comprising the results of experiments on sixty-three oils of known purity and origin, the author clearly shows that even excepting the liver oils, a distinction between vegetable and animal oils and fats cannot be made by means of phospho-molybdic acid. Several kinds of olive oil, as also almond oil, arachis oil, and peach oil, showed far less distinct reactions than tallow oleine and even lard oil. The reduction of the phospho-molybdic acid is evidently caused by minute quantities of impurities in the oils and fats themselves or by some secondary products appearing with even slight rancidity setting in. Thus the table clearly demonstrates the necessity of using Welman's test with great caution. In practical analysis, an adulteration with 10 per cent. of cotton-seed oil would escape detection if freshly-rendered lard had been used. Indeed, pure lard mixed with 15 per cent. of cotton-seed oil gave a reaction just the same as a sample of genuine lard six years old and somewhat rancid.

The fact that rancid lard has a reducing action on the phospho-molybdic acid is a welcome corroboration of Bevan's recently-published statement that lard which had been exposed to air gave a strong reaction with silver nitrate. Both reactions show that products of an aldehydic nature are formed when the fat turns rancid.

Welman's reaction can therefore be only admitted as a preliminary test, the indications of which may in some cases give valuable hints as to the directions in which the examination of a given sample has to be carried out, or may serve as a useful corroboration of results obtained by other methods.

ANSWERS TO CORRESPONDENTS.

G. B.—Thanks for communication duly to hand.

J. R. G. (Auckland).—Many thanks. We shall be pleased to be remembered again in the future.

F. H.—12s. 6d., post free, per annum; weekly.

M. AND A. (Brussels).—It has been forwarded.

E. B. S. (Selzette).—Such information is always welcome. Kindly remember this in the future.

E. W. (Bucklesbury).—We are obliged, and have duly noted your suggestion.

H.—Yes, this week.

De Novo.—It is out of our province. To do so would render the compilation of the other useless. What is relevant finds its way through the various branches of the technical press.

EXPORTS OF SODIUM NITRATE.—The Permanent Nitrate Committee report the total exports to Europe, in July, as 1,336,000 quintals; loading for Europe, August 1st, 1,500,000 quintals; arrivals in Europe, July 49,520 tons; deliveries in Europe, July, 40,000 tons; visible supply, Europe, August 1, stocks and afloat, 255,390 tons. Managers on the spot at Iquique and other *officinas* confidently expect a largely increased output during 1895.

THE GROWTH OF THE COTTON-SEED OIL INDUSTRY.—The cotton-seed oil industry in the United States has increased enormously in the last ten or fifteen years. In 1880 only forty mills were running—nearly all in the south—representing an aggregate capital of about £700,000. Now it is said there are 300 mills, with a combined capital of £6,000,000. The present consumption is 15,000,000 tons of seed, yielding about £3,600,000 annually to farmers for something until recently regarded as waste. The total output is 15,000,000 barrels or 60,000,000 gallons of oil, 500,000 tons of cotton-seed meal, 750,000 tons of hulls, 3,000,000 pounds of linters, bringing in an aggregate revenue of £6,000,000.

LIVERPOOL OBJECTS TO RAISING THE FLASH POINT.—When the question of raising the flash point of burning oils came before the Liverpool Chamber of Commerce this week, the proceedings of the general trade committee stated that the Edinburgh Chamber of Commerce had memorialised the Government, asking that the flash point of illuminating oils should be raised from 73° F. to 100° F., and the Liverpool Chamber had been asked to support the recommendation. It was represented, however, on behalf of the Liverpool mineral oil trade that such action would not be advantageous to Liverpool trade, and that experience did not justify the step.

Trade Notes.

OBITUARY.—It is with much regret that we have to record the death of Dr. C. R. Alder Wright, F.R.S. He was a student at Owens College, Manchester, and subsequently went as chemist to the Runcorn Soap and Alkali Works. His studies and memoirs cover a very wide field of scientific and industrial research. He was 49 years of age.

HEYWOOD SEWAGE SCHEME.—At a special meeting of the Health Committee of the Heywood Town Council last week the Committee decided to recommend the Corporation to accept the tender sent in by Messrs. Townsend, Watson, and Gates, of Sheffield, for the carrying out of the works of sewage purification. This tender was for £20,177. 15s. 3d., and the highest tender was nearly £36,000. The cutting of the first sod is to take place on Monday, 13th inst., and it was decided to ask the Mayor (Alderman Lawton) to perform the ceremony.

THE WEAVER RATES FOR CHEMICALS.—On Tuesday, a conference took place at the Board of Trade between the Trustees of the Weaver Navigation on the one part and the Salt Union and Brunner, Mond, and Company and the Liverpool Chamber of Commerce on the other, with reference to the tolls to be charged on the navigation. Sir Courtenay Boyle, K.C.B., presided, and was accompanied by Mr. Hopwood and Mr. Pelham. Mr. Brunner, M.P.; Mr. Walter Long, M.P.; Mr. Tollemache, M.P.; the Hon. Lionel Ashley, and Mr. Verdin represented the views of the parties. It was agreed that a toll of 10d. per ton on salt and alkali should be charged, and that no further opposition should be given to the Bill which comes before Parliament in a few days.

FIRE AT THE SOUTH METROPOLITAN GAS WORKS.—Last Saturday evening, shortly before 6 o'clock, clouds of smoke were noticed rising from the Canal-bridge portion of these gas works in Old Kent-road, and the *employés* soon had their manual engine at work. The flames were raging in a building of two floors—60ft. by 40ft.—where the manufacture of water-gas was carried on, and two of the workmen who were attending to the furnace are stated to have had a narrow escape. An alarm was given to the Metropolitan Fire Brigade, and engines were soon present from the Old Kent-road, Peckham, New-cross, Dulwich, and Deptford stations, but in the meantime the *employés* at the works had got the fire well in hand, and it was prevented from spreading. Considerable damage was done to the building in which it originated. The fire is supposed to have been caused through oil boiling over into the furnace.

A COLOUR PHOTOGRAPHY COMPETITION.—In view of the great difference of opinion which still exists in this country, as to the kind of plates to be used for obtaining the true relative colour values, we believe it will be of general interest to the photographic world to have this question settled, although it is generally believed that ordinary plates cannot reproduce the relative colour values, even when a screen is used, in the same way as orthochromatic plates can. Messrs. Fucst Bros. have decided to offer prizes, amounting to £35, for the best reproductions of two chromolithographs (which will be supplied by them) open to any English commercial plates; and this sum will be increased to £50, if the best reproductions are obtained on Lumiere's plates, lately put on the market by them. The following gentlemen have kindly consented to become the judges in the competition:—Captain Abney, Messrs. C. H. Bothamley, and Andrew Pringle.

POISONING FATALITIES THROUGH NITROUS FUMES.—A striking instance of the truth of Mr. Watson Smith's remarks about the insidious dangers of nitrous fumes has occurred at Namur. A correspondent while informing us of a fatal accident which occurred recently at the white lead works of Asty-Moulin, goes on to explain that the workmen had placed in a chamber some "nitrate salt" which was to be decomposed by heat. At 12.30 p.m. it was seen that the material had caught fire. Immediately the iron door closing the chamber was removed, and the poisonous gases pervaded the works. The manager and chemist rushed to the scene of the fire, and, with a small fire-engine, attacked the flames. They were aided by several workmen, and later, by the local fire brigade. The fire being confined by thick walls was quickly mastered. Although little damage to property was done, the accident proved very disastrous to those who had to cope with the fire. Later in the day, the chemist, on returning home about 5.30 was taken ill, being seized with acute dyspnoea, followed by the usual sensations of suffocation. A doctor was at once called in, and the chemist treated for poisoning by hypnitrous gas. At 10 o'clock the chemist died. At about the same time two other workmen were seized with the same symptoms, namely, suffocation fits and efforts to vomit. They both died at a later hour the same evening. The manager, though of robust constitution, is similarly in a very grave condition, but it is hoped that he will survive in spite of the terrible attacks of suffocation he suffers from. Three other workmen are seriously ill, and lie in a critical state at the hospital. Only one workman out of all those who were working at the fire has escaped scot-free.

CHANGE OF ADDRESS.—We learn that Messrs. G. G. Blackwell, Sons, and Co., who have carried on their business of mineral and bauxite merchants for over twenty-five years at Irwell Chambers West, Liverpool, have removed into more convenient premises, situate at 136, The Albany, Oldhall-street, in the same city.

SUFFOCATED IN A WELL.—Whilst three men were sinking a well at Hawkhurst, last week, a sudden rush of impure gases occurred, and before the workmen could be rescued the foreman, a married man named Symonds, succumbed. The men had had a narrow escape of losing their lives earlier in the day by a previous outburst of foul air.

THE OUTPUT OF GOLD.—The returns of the Champion Reef Gold Mining Co., of India for the past month are as follows: 3,800 tons of quartz produced 5,158 ounces of gold; 620 tons of tailings produced 131 ounces of gold; total produced for the month, 5,259 ounces of gold. Garland's shaft 740, lode 4ft 6in., assaying 10z. 15dwt. per ton.

THE WETTEST SPOT ON EARTH.—Manchester is considered a wet city, and although last Thursday the rainfall in Lancashire was phenomenal, dwellers in that part of the country have something to be thankful for. Cherrypunge, in south-western Assam, is said to be the wettest place in the world. The average annual rainfall is six hundred and ten inches. In 1861 the rainfall there reached nine hundred and five inches.

AMERICAN PLATINUM ON THE INCREASE.—The production of platinum is increasing in the United States. The nickel ore from Copper Cliff, near Sudbury, contains 0.20 per cent. of platinum, and similar ores have been observed at Denison, Ontario, containing from traces to 0.53 per cent. of platinum. A recent discovery of platinum ores on the river Tulamee, in British Columbia, appears to be of even greater importance.

ANOTHER PARAFFIN LAMP ACCIDENT.—About 11.30 on Tuesday night a fire broke out at the house occupied by a family in Henry-street, Oldham-road, Manchester. A woman was going upstairs with a lighted paraffin lamp in her hand, when she let the lamp fall. Sergeant Stevens and police-constables Slater and Macdonald were in the vicinity at the time, and were attracted by the screams. Several persons were in the house, but they were soon rescued. A fire-escape was also procured from Goulden-street. The fire was soon extinguished, very little damage being done.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is an easier tone in tar products generally, with the exception of pitch. Benzol quotations vary according to situation, but the real value of the article remains virtually unaltered from last week's quotations. Both crude and crystal carbolic acid are somewhat lower in price, to the extent of the fractions, leaving the quotations in round figures, namely 1s. 7d. and 6d. respectively. Crude naphtha is also cheaper at 5d. The most marked decline, however, is in solvent naphtha, which is now quoted 1s. 3d. Pitch continues firm at 33s., f.o.b. East Coast.

In sulphate of ammonia there is very little change to record as compared with last week. Prices seem just on the balance between an advance or a decline. "Bears" are not neglecting their opportunity, though, on the other hand, a very slight increase in the demand would most probably turn the scale in favour of an advance in values. Nearest quotations are: Beckton £13. 15s., London outside makes £13. 15s., Liverpool £13. 15s., Hull £13. 13s. 9d. to £13. 15s., Leith £13. 12s. 6d. to £13. 13s. 9d.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been of a holiday character, and there is very little business to report. Florida rock, 75/80%, has been sold at 8½d. per unit, c.i.f. to the Baltic; 8d. c.i.f. to Continental ports would be taken, and there are sellers at 7¾d. per unit to United Kingdom. The quotation for South Carolina River rock remains 6½d. per unit, but a fraction less would probably be business. Peace River rock is scarce, and for this sellers are asking 6¾d. per unit, c.i.f. A large cargo of River Plate bones, near at hand, has been sold at £4. 11s. 3d., but for anything of handy size, July-August-September shipment, £4. 12s. 6d. would have to be paid. Bombay bone meal is a shade easier, and there are now sellers at £4. 12s. 6d. per ton, delivered Liverpool, Glasgow, or Hull. Common grinding bones are inquired for, and are worth £4. 5s. to £4. 7s. 6d. per ton, ex quay Liverpool. The position of nitrate of soda is unchanged: on spot there are sellers of ordinary quality at 8s. 9d., but for fine quality 8s. 10½d. per cwt. has been paid. Due and port of call cargoes are worth 8s. 9d. to 8s. 10½d. per cwt., according to size and test, and later shipments 8s. 10½d. to 9s. 1½d., according to position and quality.

MISCELLANEOUS CHEMICAL MARKET.

There has been more activity in the market during the week, notwithstanding the holidays, and generally things are more satisfactory. Bleaching powder is moving more freely. Caustic soda is in better demand, and prices have a firmer tendency. Soda ash quiet, and shows no sign of improvement at present. Chlorate of potash can still be had at 6½d., and soda at 8d. per lb. Sulphate of copper remains dull at £14. 10s. per ton. Nitrate of soda steady, and sales are fairly good, £8. 15s. to £9. is about to-day's value. Acetates do not improve. Soda is quoted at £14. 10s. per ton, with but little business resulting. Lime is, if anything, a trifle stronger. Lead (foreign white) dull at £24. 10s. Nitrate £18. 10s. Borax difficult to move. Yellow prussiate of potash finds a ready sale at 10½d. per lb. Soda 9½d. Oxalic acid firm at 3½d. to 3¾d. per lb. Ammonia salts are a little easier. Muriate (grey) is offered at £22. 10s.; white, £26. Carbonate unchanged. White powdered arsenic is in rather small request, and price is weaker, £13. 15s. to £14. at Garston being to-day's quotation.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 1d., Middlesbrough 35s. 5½d. cash, and hematite 43s. 8d. Copper, quiet: Chili bars, G.O.B.'s and G.M.B.'s, closed at £38. 11s. 3d. to £38. 16s. 3d. cash, and £38. 18s. 9d. to £39. 3s. 9d. three months. Tin, firm: Straits closed at £66. 5s. to £66. 15s. cash, and £66. 15s. to £67. 5s. three months; Australian, £67.; English ingots, £69. 10s. Lead, quiet: Spanish, £9. 10s. to £9. 11s. 3d.; English, £9. 12s. 6d. to £9. 15s. Silesian Spelter, ordinary, £15. 10s. Nickel, 1s. 6½d. Antimony, £32. Quicksilver: first hands, £6.; second hands, £5. 19s. Copper shares, quiet: Cape, 1 to 1¼; Copiapo, 1½ to 1¾; Libiola, 3 to 3¼; Mason and Barry, 2½ to 2¾; Rio Tinto, 13½ to 13¾; Tharsis, 4½ to 4¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.
OILS.—Palm oil is firm, with a fairly good business doing for near at hand. Olive is steady, but there is but little doing, the holidays having interfered with business. Linseed remains without alteration at 21s. 9d. to 22s. 6d. per cwt. for Liverpool makes in export casks, and is quiet even at that. Cottonseed only moving slowly, with prices at 20s. 9d. to 21s. 6d. per cwt. for Liverpool refined. Castor oil keeps fairly active: good seconds Calcutta continues to sell at 2¾d. to 2½d. per lb.; first pressure French keeps easy at 2d. to 2½d. per lb. Tallow is steady, but in limited demand. Resin is fairly steady: common and medium are being held, but fine is inclined to move somewhat easier. Spirits of turpentine is still on the decline, and 22s. 3d. per cwt. is quotation to-day. Petroleum is moving off better at 4d. to 5½d., according to quality, for American, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, and oxide of zinc unchanged. Venetian red, £6. 10s. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £6.; medium, £10.; finest, £20. Zinc oxide, £23. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.
OILS.—Oils are a better market, having all round a better tone and being in fair demand. The import of linseed for the week is 4,614 qrs.; and of cottonseed a very small import of 543 tons from Alexandria and 217 tons from Smyrna, and in addition there are only 1,000 tons afloat. Amongst the principal imports up to date are the following:—Linseed, 279,320 qrs. against 182,526 qrs. during the same period last year; rapeseed, 66,441 qrs. against 33,787 qrs.; cottonseed, 124,545 tons against 112,569 tons; olive oil, 14,007 casks against 6,784 casks; rape oil, 4,769 casks against 4,185 casks; oilcakes, 10,134 tons against 12,862 tons; tallow, 14,330 cwt. against 18,916 cwt.; turpentine, 12,960 barrels against 10,057 barrels. Linseed oil is firm at 19s. 6d. to 19s. 7½d. naked spot; month, 19s. 4½d.; and September-December or January-April, 18s. 6d.; boiled and refined from £1. to £2. per ton extra. Export for the week, 1,100 cwt. Refined cotton oil has improved about 10s. per ton, closing firm at 18s. 6d. to 18s. 7½d.

naked spot or August-October; November-April sold at 17s. 6d.; crude worth 16s. 10½d. naked spot. Export for the week, 2,200 cwt. Rape and olive oils remain unchanged. Castor oil for first pressure, 2½d. per lb. Spirits of turpentine, 22s. 3d. Cod oil very quiet from £17. to £20. per ton. Sod oil quiet. Rosin oil, £6. 10s. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes: A firm tone, but demand is dull, especially for oilcakes: 95% pure, £6. 12s. 6d.; Russians, £6 7s. 6d. to £6. 10s.; oil cakes, £5. 10s. to £5. 12s. 6d. Cotton cakes: Sellers ask more money, owing to the paucity and strong attitude of seed, but buyers are very scarce. Best makes, £4. 2s. 6d.; seconds, £3. 17s. 6d. Rape cakes: Black Sea, £3. Feeding cakes, £4. 12s. 6d. per ton.

PAINTS.—The situation is unchanged, owing to the unsatisfactory weather. Prices are unchanged, and are: Oxide of iron, dry, from £7. to £18. per ton. Venetian red, dry, from £4. Blue black, £4. 5s. Mineral black, £4. Yellow ochre, dry, from £3. 15s. per ton. Oxide of zinc paint from 22s. 6d. White and red leads unchanged. Emerald green from 9d. per lb. Ultramarines from 3d. to 8d. per lb. Common black varnish from £5. 10s. per ton.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue fairly steady, and shipments are fully up to the average. Prices remain unaltered. Soda crystals, £2. 1s. per ton. Bleach firm at £7. 5s. to £7. 10s. per ton. Ash continues in good demand.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett; soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, nett; gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 5%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 10s. 6d. per ton, f.o.b. Tees.

COALS.—Trade continues quiet, and prices generally are unaltered. There is still a considerable demand from East Coast Scotch ports. Best Northumbrian steady at 11s. per ton; second qualities, 9s. 6d. per ton; small steam, 5s. per ton; bunker coals steady at 7s. 3d. to 7s. 6d. per ton; gas coals, 7s. to 7s. 3d. per ton; coke continues firm at 13s. 6d. to 14s. 6d. per ton.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, August 1st, 1894, state:—

Chilli Charters for the second half of July are advised as 400 tons, which with 1,400 tons for the previous fortnight make 1,800 tons for the month. The total since 31st December is 12,350 tons, against 12,500 tons same time last year. Exchange 12d. Since our last the market for G.O.B.'s and G.M.B.'s has been quiet, and about 4,700 tons changed hands at from £38. 13s. 9d. to £38. cash and to £39. 1s. 3d. to £38. 10s. od. three months, closing steady to-day at £38. 5s. for the former, and £38. 12s. 6d. for the latter. The total stocks in Liverpool, Swansea, London and Havre are 47,975 tons, against 46,325 tons on the 16th ult., showing an increase of 1,650 tons for the fortnight. The figures for the previous fortnight showed an increase of 553 tons, making the increase for the month 2,203 tons. The stocks include about 1,600 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 51,293 tons, against 51,543 tons on the 16th July, showing a decrease of 250 tons. This month's figures show an increase of 1,329 tons. The stock of English G.M.B.'s in Liverpool remains at 2 tons. Refined and manufactured sorts are dull, quotations being:—Tough cake, £40. 10s. to £41.; best select, £41. to £41. 10s.; Indian sheets, £46.; strong sheets, £48. to £48. 10s.; and yellow metal sheets, 4½d. per lb. The sales of furnace material only comprise—at Liverpool: 40 tons Egyptian ore, 14 per cent., at 6s. 9d.; 100 tons Mexican ore, 20 per cent., at 7s.; and 100 tons Portuguese ore, low produce, at 6s. 7½d. per unit. At Swansea: 100 tons Libiola ore, at 7s. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The sulphate of ammonia position is a puzzle for both holders and buyers. July and August are almost always busy months for transactions, but this year, so far, they have been characterised by extra torpidity only. Holders still look for at least a remnant of the activity that should have been, and therefore hold; buyers probably refrain from buying as long as they can, in the expectation of an early settlement of the mining strike, accompanied by a fall in sulphate, as a consequence of the resumption of full production. Spot price may be stated as at from £13. 12s. 6d. to £13. 13s. 9d., but hardly any sale movement.

In general chemicals there has been rather more doing, probably due to overtaking the arrears caused by the holidays. Soda ash is a little dearer, but in the others there is no change.

The mineral oil section of this market has undergone an important change in the reduction of burning oil by one farthing a gallon, other conditions of sale remaining as before. Makers met on the 3rd inst. and agreed to this, since when a large number of season contracts have been booked. The other paraffins show no change.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 2s. 6d. nett, Tyne; white alkali 48/52° £4 10s to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; salicake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 13s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £13. 12s. 6d. to £13. 13s. 9d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 10s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1½d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 4 700 bags

New Companies.

The Southam Hematite Company, Limited.—CAPITAL £22,000. in shares of £100. each. This company has been formed to purchase from the Southam Hematite Company certain iron ore mines, and to work the same. The subscribers to the memorandum of association are: J. Baird, 10, Corkickle, Whitehaven, ironmaster; J. D. Kendall, 10, Foxhouses-road, Whitehaven, civil engineer; W. White, 23, Inkerman-terrace, Whitehaven, accountant; T. Brown, 12, Scotch-street, Whitehaven, solicitor; W. McCowan, Roseneath, near Whitehaven, ironmaster; T. N. Nixon, Corkickle, Whitehaven, accountant.

Strutt's Utopia Soaps, Limited.—CAPITAL £6,000. in 300 A and 300 deferred shares, each of £10. This company has been formed to carry on the business of soap manufacturers, merchants, wharfingers, etc.

County Trading Company, Limited.—CAPITAL £15,000. in shares of £1. each. This company has been formed to acquire the business of Joe Todd, Limited, and to trade as wholesale chemists, drysalters, and oil-paint and colour manufacturers. The subscribers to the memorandum of association are: J. W. Hope, The Poplars, Scotby, gentleman; J. C. Purvis, Carlisle, agent; J. J. Saint, 39, Lowther-street, Carlisle, chartered accountant; J. J. Dawson, 21, Guildhall-street, Preston, stockbroker; W. T. Trimble, Green Lanes, Dalston, gentleman; A. J. Livesey, Bank-street, Carlisle, solicitor; J. J. Robinson, 76, English-street, Carlisle, chemist, etc.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Smoke-Preventing Apparatus. S. A. Johnson. 14,116. July 23.
Extracting and Estimating Eucalyptol. L. R. Scammell. 14,138. July 23.
Improvements in Steam Jet Blowers. W. H. Wheatley. 14,150. July 23.
Manufacture of Sulphocyanides. G. S. Albright and J. J. Hood. 14,154. July 23.
Extracting Metals. J. J. Hood. 14,155. July 23.
Improvements in Coke Ovens. A. D. Shrewsbury. 14,196. July 24.
Process and Apparatus for Rectifying Sulphuric Acid. J. W. Scott. 14,215. July 24.
Producing Carbonic Acid and Obtaining Bye-Products, such as Sulphates of Sodium and Magnesium. E. W. Enequist. 14,228. July 24.
Manufacture of Aluminium Alloys and Electro-Depositing the same. A. F. B. Gomes. 14,327. July 25.
Preventing the Incrustation of Tubular Boilers with Internal Furnaces. La Soc. Chaliguy et Cie. 14,391. July 26.
Improvements in Varnishes. D. Marcus. 14,407. July 27.
Manufacture of Tungsten Articles. A. S. E. Cripps. 14,482. July 27.
Treating Slag for the Manufacture of Cement. W. Tomlinson. 14,494. July 28.
Producing Nitric Acid free from Halogen and Nitrose by Blowing Air into the Mixture of Nitric and Sulphuric Acid. W. B. Maxfield. 14,520. July 28.

Gazette Notices.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

BLAREMORE, FLORENCE EMILY, trading as E. Hudson and Co., Wolverhampton, drysalter and oil and colour dealer; married woman trading on her own account.
ALCOCK, H. WESTON, Barton-on-Humber, brick and tile manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending July 28th.

Acetate of Lime—

U. States, 637 pkgs. H. Wallace & Co.

Acetic Acid—

Holland, 114 pkgs. Beresford & Co.

" 84 A. & M. Zimmermann

Alum—

Holland, 206 pkgs. Pillow, Jones & Co.

Belgium, 24 City Coml. Wf. Ld.

Alumite—

Sydney, 145 t. J. Allen & Co.

Anthracene—

Holland, 500 pkgs. Burt, Boulton & Co.

" 148 Little & Johnston

Antimony Ore—

France, 5 t. Smith, Sundius & Co.

Asbestos—

France, £24 Mory & Co.

Italy, 180 Bot. & Nich's Wf. Ltd.

Canada, 40 Beck & Pollitzer

" 1,000 W. Byford

Barytes—

Holland, 66 cks. T. & W. Farmiloe

" 48 R. Bew

Belgium, 41 Burrell & Co.

" 82 J. L. Lyon & Co.

" 200 bgs. Leach & Co.

Germany, 19 cks. P. Jantzen

" 25 H. Lambert

Bleaching Soda—

Germany, 67 c. H. Lambert

Bromide of Iron—

Germany, 2 pkgs. A. & M. Zimmermann

Caoutchouc—

Zanzibar, 16 c. Forbes, Forbes & Co.

" 28 L. & I. D. Jt. Co.

Rangoon, 588 " "

E. Indies, 40 Prop. Bull Wf.

" 102 Ross & Deering

" 58 Ralli Bros.

Germany, 340 W. Balchin

" 2 J. Barber & Co.

Savannah, 10 Royal Mail S. P. Co.

" 20 Stiebel Bros.

France, 40 " "

" 6 Hoare, Wilson & Co.

" 132 Kleinwort, Sons & Co.

Rangoon, 303 Middleton S. S. Wf. Co.

Castor Oil—

France, 113 brls. F. V. Smythe & Co.

" 26 Beresford & Co.

" 50 J. Goddard & Co.

" 28 J. Greig

" 16 Lucas & Spencer's Wf. Ld.

" 20 cks. J. T. Morton

E. Indies, 271 Cayzer, Irvine & Co.

Belgium, 5 brls. Fuerst Bros.

Caustic Potash—

France, 20 drs. Spies Bros. & Co.

Chemicals (otherwise unclassified)

Germany, 4 pkgs. L. & I. D. Jt. Co.

" 1 Domier & Co.

" 31 cks. F. Smith

" £11 Henu, Peron & Co.

" 6 H. Lambert

" 16 pkgs. Philipps & Graves

" 69 A. & M. Zimmermann

France, 74 T. H. Lee

" 48 " "

Holland, 8 " "

" 10 G. Rahn & Co.

Cream of Tartar—

France, 26 pkgs. B. & F. Wf. Co.

" 4 E. W. Carling & Co.

" 10 M. Ashby, Ld.

Spain, 20 W. C. Bacon & Co.

" 3 F. W. Bowyer & Co.

" 20 C. Christophersen & Co.

Italy, 9 Fellows, Morton & Co.

Japan, 40 L. & I. D. Jt. Co.

Dextrine—

Germany, 10 pkgs. Prop. Sun. Wf.

" 100 J. Barber & Co.

Holland, 20 H. Lorenz

France, 30 J. W. Drysdale & Co.

Dyestuffs—

Annatto

Holland, 1 pkgs. R. J. Fullwood & Co.

[illegible]

Pumice Stone —		
Leghorn,	10 bgs.	40 cs.
Messina,	50	12 brls.
Pyrites —		
Huelva,	2,018 t.	
"	3,280	Matheson & Co.
Rosin —		
Wilmington,	2,662 brls.	
New York,	10	R. Singlehurst & Co.
Salt —		
Sette Kroo,	40 bgs.	Norton & Co.
"	70	Pickering & Berthoud
"	80	Edward Bros.
Saltpetre —		
Calcutta,	2,335 bgs.	Ralli Bros.
Hamburg,	50 brls.	
Soap —		
Sette Kroo,	4 bxs.	Edward Bros.
New York,	500 brls.	
Marseilles,	225 bxs.	8 cs.
Leghorn,	250	Weaver & Sterry
Bari,	129 cs.	
Naples,	143	P. Behrend
Starch —		
Antwerp,	70 cs.	J. T. Fletcher & Co.
Rotterdam,	320 cs.	
Stearine —		
New York,	13 hds.	
Antwerp,	22 bgs.	
Sulphur —		
Catania,	142 bgs.	134 brls.
Girgenti,	300 t.	100 cks.
Tallow —		
New York,	125 hds.	
B. Ayres,	444 pps.	12 hf. pps.
Philadelphia,	189 tcs.	
B. Ayres,	130 cks.	T. Bracht & Co.
Tar —		
Sette Kroo,	2 dms.	T. E. Tomlinson & Co.
Wilmington,	1,100 brls.	
Tartar —		
Bordeaux,	7 cks.	
Tartaric Acid —		
Rotterdam,	16 cks.	
Turpentine —		
Wilmington,	200 brls.	
Ultramarine —		
Hamburg,	5 cs.	
White Lead —		
Antwerp,	14 cks.	
Rotterdam,	60	
Trieste,	1 cs.	Mander Bros.
Wood Pulp —		
Montreal,	9,930 bds.	A. Rice & Co.
Zinc Oxide —		
New York,	50 brls.	
Antwerp,	75	
Zinc White —		
Antwerp,	25 brls.	

MANCHESTER.

Week ending July 28th.

Acetate of Lime —		
Bordeaux,	86 bgs.	
Acetone —		
Rotterdam,	1 djhn.	
Alumina Sulphate —		
Rotterdam,	65 cks.	
"	69	Simpson, Howden, & Co.
Aniline Colours —		
Hamburg,	21 cks.	R. Steinmann & Co.
Antimony —		
Treport,	2 kgs.	
Arachide Oil —		
Rotterdam,	6 cks.	
"	10	Simpson, Howden, & Co.
Barium Chloride —		
Hamburg,	12 cks.	R. Steinmann & Co.
Camphor —		
Hamburg,	1 ck.	R. Steinmann & Co.
Carbonic Acid —		
Rotterdam,	38 tubes.	
Chemicals (otherwise undescribed)		
Rotterdam,	2 cks.	
Bordeaux,	12	

Hamburg,	3	6 cs.	R. Steinmann & Co.
Colours —			
Rotterdam,	1 bx.	16 cks.	92 cs.
"	9	44	14
"	24	24	37 brls.
Treport,	19 cks.	17 cs.	Simpson, Howden, & Co.
Hamburg,	11 cs.		R. Steinmann & Co.
Cream of Tartar —			
Rotterdam,	30 kgs.		Simpson, Howden, & Co.
Dyestuffs —			
Alizarine			
Rotterdam	1 bx.	5 cks.	7 cs.
"			Simpson, Howden, & Co.
Indigo			
Rotterdam,	6 cs.		
Farina —			
Hamburg,	86 bgs.		R. Steinmann & Co.
Limestone —			
Antwerp,	2 crts.		
Litharge —			
Rotterdam,	18 cks.		
Manganese —			
Rotterdam,	1 ck.		
Methyl Alcohol —			
Antwerp,	12 brls.		
Mineral White —			
Bordeaux,	100 bgs.		
Oxalic Acid —			
Rotterdam,	15 cks.		Simpson, Howden, & Co.
Palm Oil —			
Hamburg,	5 cs.		R. Steinmann & Co.
Potash —			
Hamburg,	21 cks.		R. Steinmann & Co.
Soap —			
Bordeaux,	8 cs.		
Soda —			
Rotterdam,	2 brls.		
Starch —			
Rotterdam,	182 cs.		
Stearine —			
Antwerp,	7 bgs.		
Tannin —			
Hamburg,	3 cks.		R. Steinmann & Co.
Tartar —			
Bordeaux,	2 cks.		
Tartaric Acid —			
Rotterdam,	11 cks.		
"	25		Simpson, Howden, & Co.
Tin Chloride —			
Rotterdam,	4 cks.		
Ultramarine —			
Hamburg,	35 cks.		R. Steinmann & Co.
Waste Salt —			
Hamburg,	200 bgs.	qty.	R. Steinmann & Co.
Wood Pulp —			
Rotterdam,	40 pkgs.		
Wood Spirit —			
Hamburg,	2 dms.		R. Steinmann & Co.
Zinc White —			
Rotterdam,	1 ck.		

HULL.

Week ending July 28th.

Acetic Acid —		
Rotterdam,	1 ck.	10 chys.
"		Hutchinson & Son
Alkali —		
Antwerp,	4 cks.	Wilson, Sons, & Co., Ltd.
Ammonium Acetate —		
Rotterdam,	4 brls.	Hutchinson & Son
Asbestos —		
Riga,	200 bgs.	Wilson, Sons, & Co., Ltd.
Reval,	99	
Barytes —		
Antwerp,	120 cks.	200 bgs.
"		Bailey & Leatham
Bremen,	46	Tudor & Sons
Rotterdam,	24	Hutchinson & Son
Chemicals (otherwise undescribed)		
Stettin,	23 pks.	Wilson, Sons, & Co., Ltd.

Bremen,	10 bkts.	Veltmann & Co.
Dunkirk,	31 cks.	Wilson, Sons, & Co., Ltd.
Hamburg,	35 pks.	
Rotterdam,	6 cks.	2 cs.
Colours —		
Rotterdam,	17 cs.	9 cks.
"	27	33
"	16	28 brls.
"	6	Hutchinson & Son
"	4	Wilson, Sons, & Co., Ltd.
Hamburg,	2	Bailey & Leatham
Ghent,	20 brls.	Wilson, Sons, & Co., Ltd.
Stettin,	20	
Bremen,	9	Veltmann & Co.
Antwerp,	30	Wilson, Sons, & Co., Ltd.
Cottonseed Oil —		
Smyrna,	32 brls.	
Cryolite —		
Copenhagen,	1 ck.	Wilson, Sons, & Co., Ltd.
Dyestuffs —		
Alizarine		
Rotterdam,	50 brls.	1 cs.
"	42 pks.	5 cks.
"		W. & C. L. Ringrose
Madder		
Rotterdam,	1 ck.	J. Pyefinch & Co.
"	1	Hutchinson & Son
Valonia		
Smyrna,	784 t.	1,539 bgs.
Farina —		
Ghent,	200 cs.	Wilson, Sons, & Co., Ltd.
Harlingen,	250 bgs.	
Hamburg,	50	
Stettin,	400	
Dunkirk,	30	
Glucose —		
Stettin,	10 cks.	Wilson, Sons, & Co., Ltd.
"	200 bgs.	
New York,	250	
Rotterdam,	4 cks.	Hutchinson & Son
Hamburg,	12	Wilson, Sons, & Co., Ltd.
Kaolin —		
Rotterdam,	20 cks.	Reckitt & Sons
Manure —		
Ghent,	102 t.	116 bgs.
"		Wilson, Sons, & Co., Ltd.
Naphthol —		
Hamburg,	5 cks.	Bailey & Leatham
Ochre —		
Rouen,	20 cks.	Rawson & Robinson
Paint —		
Hamburg,	32 kgs.	Bailey & Leatham
Phosphate —		
Dunkirk,	500 bgs.	
Pitch —		
Hamburg,	200 pks.	Wilson, Sons, & Co., Ltd.
Libau,	1 tun.	
Potash —		
Hamburg,	10 cks.	Bailey & Leatham
Drontheim,	50 bgs.	Wilson, Sons, & Co., Ltd.
Pumice Stone —		
Antwerp,	10 bgs.	Wilson, Sons, & Co., Ltd.
Hamburg,	1 cs.	
Salt —		
Hamburg,	250 bgs.	Bailey & Leatham
Saltpetre —		
Hamburg,	4 brls.	Wilson, Sons, & Co., Ltd.
Sodium Acetate —		
Rouen,	21 cks.	
Starch —		
Ghent,	64 cs.	Wilson, Sons, & Co., Ltd.
Bremen,	2,333	1 brl.
"		Veltmann & Co.
Stearine —		
Bergen,	21 cks.	Wilson, Sons, & Co., Ltd.

Antwerp,	5 bgs.	"
Sulphur —		
Abo,	3 bgs.	J. Good & Sons
Talc —		
New York,	150 bgs.	Wilson, Sons, & Co., Ltd.
Tannin —		
Antwerp,	2 cks.	
Tar —		
Libau,	4 t.	
Tartar —		
Bordeaux,	11 cks.	Rawson & Robinson
Tartaric Acid —		
Rotterdam,	2 cks.	Hutchinson & Son
Tin Chloride —		
Amsterdam,	4 cks.	W. & C. L. Ringrose
Tin Oxide —		
Rotterdam,	8 cks.	Hutchinson & Son
Turpentine —		
Bordeaux,	16 brls.	Rawson & Robinson
Libau,	105 cks.	
Ultramarine —		
Rotterdam,	7 cks.	W. & C. L. Ringrose
"	8	Storry, Witty, & Co.
Varnish —		
Hamburg,	1 cs.	Wilson, Sons, & Co., Ltd.
White Lead —		
Antwerp,	59 cks.	Bailey & Leatham
Rotterdam,	25	Hutchinson & Son
Wood Pulp —		
Hamburg,	32 bls.	Bailey & Leatham

GLASGOW.

Week ending August 2nd.

Acetate of Lime —		
New York,	751 bgs.	
Acetic Acid —		
Rotterdam,	1 djhn.	J. Rankine & Son
Barytes —		
Rotterdam,	115 cks.	J. Rankine & Son
Bone Meal —		
Bombay,	3,444 bgs.	
Carbonic Acid —		
Rotterdam,	37 tubes.	J. Rankine & Son
"	30	
Castor Oil —		
Marseilles,	30 cs.	13 cks.
Antwerp,	57	
Chemicals (otherwise undescribed)		
Hamburg,	12 cs.	
Colours —		
Rotterdam,	7 cks.	3 cs.
"		J. Rankine & Son
"		20 pkgs.
Hamburg,	10 cs.	1 ck.
Cream of Tartar —		
Tarragona,	5 pps.	
Dyestuffs —		
Alizarine		
Rotterdam,	13 brls.	J. Rankine & Son
"	63 pkgs.	
Fastic		
New York,	791 pcs.	
Madder		
Rotterdam,	2 cks.	J. Rankine & Son
Marseilles,	10	
Glucose —		
New York,	100 brls.	
Guanoc —		
Tromsø,	250 bgs.	
Iron Oxide —		
Montreal,	20 brls.	18 kgs.
Oxalic Acid —		
Rotterdam,	8 cks.	J. Rankine & Son
Paint —		
Montreal,	9 cs.	5 brls.
Painters' Colours —		
Antwerp,	9 cks.	4 cs.
Paraffin Scale —		
New York,	429 brls.	

Phosphate—		TYNE.		Zinc Oxide—		Glucose—	
Bona,	500 t.	<i>Week ending July 28th.</i>		Antwerp,	25 brls. Tyne S. S. Co.	Hamburg,	47 cks.
Potashes—				Zinc Sulphate—		Potash—	
Montreal,	25 brls.			Hamburg,	12 cks. Tyne S. S. Co.	Rotterdam,	25 cks.
Rosin—				GOOLE.		Dunkirk,	2 50 dms.
New York,	250 brls.			<i>Week ending July 25th.</i>		Calais,	44
Soap—						Saltpetre—	
Marseilles,	15 cs.					Rotterdam,	200 bgs.
Starch—						Starch—	
Rotterdam,	76 cs.					Antwerp,	190 cs.
Tallow—						Ghent,	120
New York,	200 hhds.					Waste Salt—	
Tin Oxide—						Hamburg,	100 t. 600 bgs. 1,389 cks.
Rotterdam,	3 cks. J. Rankine & Son					GRIMSBY.	
Waste Salt—						<i>Week ending July 28th.</i>	
Hamburg,	150 t. 274 cks.						
White Lead—							
Rotterdam,	30 cks. J. Rankine & Son						
Antwerp,	11						
Rotterdam,	38						
Wood Pulp—							
Gothenburg,	484 bls.						
Bergen,	1,900						
Christiania,	450						
Zinc Oxide—							
Rotterdam,	25 cks.						
Zinc White—							
Rotterdam,	200 cks. J. Rankine & Son						

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			E. London,			Shanghai,			Copperas—		
Week ending August 1st.			Melbourne,			Brisbane,			Auckland,		
			5 t.			1			10 t. 16 c.		
			15			2			£20		
			260			41					
			£12			£300					
			45			60					
			16			30					
			13			30					
			111			30					
			13			30					
			51			30					
			52			30					
			170			30					
			£35			£44					
			50			£20					
			£46			£249					
			33			1,550					
			32			88					
			80			£1,555					
			46			£66					
			82			85					
			45			9					
			71			£30					
			17			£30					
			245			£30					
			£35			£30					
			£49			£30					
			13			£30					
			56			£30					
			11			£30					
			24			£30					
			11			£30					
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Phosphates—			Ammonium Chloride—			Aniline Oil			Potassium Chlorate—		
Cape Town,	10 t.	£25	Trieste,	1 t.	£35	Bari,	2 dms.		Hiogo,	5 t.	£293
Phosphorus—			Philadelphia,	13 4 c.	44	St. Louis,	15		Antwerp,	8	555
Sydney,	11 cs.	£112	Patras,	3	6	Aniline Salts			Boston,	7 10 c.	423
Picric Acid—			Alexandria,	1	37	New York,	40 cs.		New York,	16 13	756
Santos,	1 cs.	£10	Ammonium Sulphate—			Naphtha			Opoto,	8	21
Potash Crystals—			Valencia,	111 t. 15 c.	£1,557	Calcutta,	20 dms.		Hamburg,	1 4	67
Brussels,	1 cs.	£12	Montreal,	5 3	70	Pitch,			Ystad,	1	19
Paris,	1	20	Barcelona,	50	633	Bilbao,	40 brls.		St. Petersburg,	16 5	960
Potash Salts—			La Pallice,	50	633	Galatz,	50		Calcutta,	10	29
Delagoa Bay,	3 t. 2 c.	£508	Philadelphia,	30 9	450	Ibrail,	27		Naples,	13	37
Auckland,	8 1	1,200	Las Palmas,	2 19 3	44	Tar,			San Sebastian,	2	7
Potassium Chlorate—			Arsenic—			Galatz,	100 brls.		Vera Cruz,	1	8
Madrid,	4 cs.	£183	San Francisco,	2 t.	£30	Cobalt Oxide—			Salt—		
Lisbon,	2 cks.	7	B. Ayres,	19 12 c.	280	Gijon,	1 q.	£37	Alligator Pond,	5 t.	
Potassium Cyanide—			Barytes—			Colour—			Antwerp,	50	
Toronto,	3 c.	£18	Lisbon,	101 kgs.		Boston,	5 kgs. 3 cs.		Boston,	420	
Sydney,	1 cs.	14	Barytes Chlorate—			New York,	5 cks.		Calcutta,	5,831	
Saltpetre—			Hamburg,	6 c.	£28	Rio de Janeiro,	10 kgs.		Kingston, Jam.,	8 19 c.	
Madeira,	10 c.	£14	Bleaching Powder—			Copperas—			Melbourne,	50	
Lisbon,	2 t. 4	47	Bilbao,	26 cks.		Smyrna,	5 t. 11 c.	£9	Montreal,	940 10	
Opoto,	4	85	Genoa,	62		Copper Sulphate—			Newport News,	395	
Adelaide,	4 10	11	Ghent,	63		Landscrona,	2 t	£28	Old Calabar,	20	
Bahia,	4 4	102	Halifax, N.S.,	31		Ghent,	1 11 c. 1 q.	21	Rotterdam,	227	
Algoa Bay,	2 18	210	Lisbon,	38		Stettin,	20 5	290	Saltake—		
Sydney,	2	46	Maranham,	20		Nantes,	22 19	345	Ghent,	129 t. 14 c.	£107
Nelson,	5	10	Montreal,	16		Hordeaux,	19 17 3	300	New York,	124 12	125
Wellington,	5	10	New York,	74 100 brls.		Kingston, Ja.,	1 15	28	Saltpetre—		
Rio de Janeiro,	73 12	1,384	Odessa,	17		Callao,	1 4 3	19	Para,	1 t. 10 c.	£33
Sheep Dip—			Piræus,	5		Valencia,	10 4 1	140	Maceio,	1 4 2 q.	30
Rotterdam,	24 pkgs.	£15	Rio de Janeiro,	1		St. Petersburg,	1 10	20	Victoria, B. C.,	10	11
Pt. Elizabeth,	1 t. 17 c.	90	Hamburg,	14 c 2 q.	£7	Amsterdam,	2 16	36	Sheep Dip—		
Punta Arenas,	13 100 cs.	189	Hong Kong,	6 1	6	Disinfectants—			Sydney,	3 t.	£60
Nelson,	105	105	Boracic Acid—			Alexandria,	2 pkgs.	£7	Slag—		
Adelaide,	420	562	Antwerp,	28 c 2 q.	£30	Montreal,	2 cks.	9	Venice,	2,200 t.	
Cape Town,	268 dms.	93	Borate of Lime—			Huelva,	1 t. 1 c. 1 q.	18	Soap—		
Calcutta,	50	37	Antwerp,	25 t. 7 c.	£235	New York,	2	25	Alexandria,	12 cs.	
Algoa Bay,	13 t.	370	Hamburg,	10	97	Iron Oxide—			Bombay,	360 bxs.	5
E. London,	350	70	Borax—			Ceara,	12 t. 18 c.	£19	Calcutta,	750 bdls.	
Auckland,	131	60	M. Video,	5 c.	£6	Lime—			Callao,	8	
M. Video,	1,000	315	Halifax,	10	18	Maranham,	10 brls.		Christiania,	200	
B. Ayres,	1,000	315	Antwerp,	7 t. 5	206	Magnesium Sulphate—			Colombo,	156	
Christchurch,	18	49	Bordeaux,	1 2	22	Vera Cruz,	1 t. 4 c. 2 q.	£5	Colon,	500	
Brisbane,	240 20 kgs.	222	Rotterdam,	2 7	53	Manure—			Constantinople,	2	
Soda Crystals—			Hamburg,	8 5	63	Las Palmas,	5 t.	£26	Corfu,	10	
Algoa Bay,	2 t.	£5	Sydney,	2 12	14	Oxalic Acid—			E. London,	11	
Singapore,	18 c.	5	Montreal,	4 4 1 q.	101	Lisbon,	1 t.	1 q. £36	Genoa,	135	
Sodium Acetate—			Havre,	2	50	Barcelona,	5 1 c.	128	Gibraltar,	100	
Melbourne,	2 t. 6 c.	£31	St. Petersburg,	5	7	Paint—			Iquitos,	200	
Sodium Bicarbonate—			Calcium Chloride—			Bilbao,	40 dms.		Kingston, Ja.,	1,700	
Trinidad,	2 t. 14 c.	£20	Boston,	24 t.	£50	Bombay,	65		Macassar,	500	
Brisbane,	2	12	Carbolic Acid—			Coquimbo,	6 cs.		New York,	578	
Nelson,	3	24	Nagasaki,	1 t. 10 c.	£78	Hamburg,	24 kgs.		Old Calabar,	2	
Wellington,	4	5	Antwerp,	1	12	Iquique,	62		Para,	200	
Sodium Hyposulphite—			Rotterdam,	4 19	228	Lanzarote,	105		Patras,	90	
Melbourne,	3 t.	£19	New York, 5 cks.		45	Mayaguez, 2 tcs.	4 cks		Ponce,	50	
Sulphur—			Dunkirk,	13	682	M. Video,	40		Port Said,	20	
Cape Town,	31 t. 5 c.	£327	Castor Oil—			Ponce,	1		St. Lucia,	60	
Algoa Bay,	5 5 30 kgs.	76	St. John's, Nfld., 3 cks.			Sagua la Grande,	1		Syria,	5	
Mossel Bay,	2 5	23	Santander,	2 cs.		San Juan,	4		Toronto,	750	
Sulphuric Acid—			Caustic Potash—			Painters' Colours—			Soda Alkali—		
Penang,	1 t 18 c.	£19	San Francisco,	3 t.	£77	Bahia,	18 kgs.	1 tce.	Barcelona,	35 brls.	
Geraldton,	14 cs.	21	Caustic Soda—			Baltimore,	180 cks.		Corfu,	50	
Algoa Bay,	4 5	30	Boston,	50 dms.		Bombay,	380		Galatz,	25	
Beira,	25 38		Calcutta,	173		B. Ayres,	500		Passages,	139	
Superphosphate—			Corfu,	40		Callao,	122 1		Sydney,	77	
Libau,	56 t. 8 c.	£1,690	Fiume,	75		Cape Town,	8 1 31 cs.		Soda Ash—		
Tartaric Acid—			Genoa,	115		Colon,	5		Adelaide,	34 cks.	101 brls.
St. Petersburg,	5 c.	£32	Hiogo,	275		Hamburg,	55		Antwerp,	100 bgs.	
Sydney,	2 t.	215	Montreal,	47		Havana,	8		Baltimore,	360	
Nelson,	6	33	Nantes,	35		Hiogo,	2		Boston,	72 400	33
Fremantle,	2	11	N. Orleans,	55		Jaffa,	2		B. Ayres,	300	
Algoa Bay,	2	11	Salonica,	30		Lisbon,	1 12 brls.	2	Calamata,	30	
Montreal,	1 cs.	6	Shanghai,	36		Matanzas,	100		Calcutta,	6 1	
Christchurch,	2	10	Tampico,	100		M. Video,	35 24	1	Callao,	25 95	100
Melbourne,	10	48	Valparaiso,	50		Montreal,	52 1		Corfu,	100	
Brisbane,	5	28	Venice,	10		Para,	3		Fremantle,	20	
Melbourne,	1 10	141	Yokohama,	78		Piræus,	14		Ghent,	3 cks.	20
Adelaide,	5	28	Chemicals (otherwise undescribed)			Rotterdam,	16		Gothenburg,	480	40
LIVERPOOL.			Salonica,	1 t. 1 c.	£38	St. Petersburg,	20		Hiogo,	134	56
<i>Week ending August 1st.</i>			Bombay,	5 12 2 q.	177	Santos,	160		Melbourne,	134	26
Albumen—			St. John's, N.B., 1 cs.		5	Toronto,	163 13		New York,	1,405	63
New York,	5 c. 1 q.	£12	Smyrna,	16 2	31	Trinidad,	2		Philadelphia,	92 1,000	75
Alum—			Boston,	1 t. 14	127	Valparaiso,	2	325	Porto Alegre,	40	
Rio de Janeiro,	19 c.	£5	Samsoun,	4	7	Paraffin Wax—			Rio Grande,	40	
Havana,	4 t. 3 1 q.	15	Antwerp,	5 1	10	Bilbao,	10 bgs.		Riode Janeiro,	50	320
Patras,	1	5	China Clay—			Para,	25 cs.		Rotterdam,	100	
Montreal,	16 16 1	84	Boston,	706 t.		Phosphate—			Samarang,	15	
Ammonium Carbonate—			Lisbon,	40 12 c.		Barcelona,	9 t. 18 c. 2 q.	£40	San Francisco,	237	129
Vera Cruz,	4 c.	£9	Montreal,	100		Phosphorus—			Sydney,	8	7
Rotterdam,	19 2 q.	33	Philadelphia,	40		Vera Cruz,	2 cs.	£20	Soda Crystals—		
Amsterdam,	4	7	Chromium Trioxide—			Trinidad,	2		Antofagasta,	20	
Opoto,	4	7	Hamburg,	2 c.	£6	Shanghai,	50	508	Bombay,	400 kgs.	
Venice,	1	34	Coal Products—			Yokohama,	10	130	Boston,	280 brls.	
Hamburg,	12	20	Aniline Colours			Plumbago—			Hamilton, Ont.,	50	
			New York, 6 cks.			Bilbao,	7 cks		Montreal,	40 160	
			Bombay, 2 cks. 5 cs.			Potash—			Odessa,	140	
						Cadiz,	1 ck.		Philadelphia,	140	
						Potassium Bichromate—			Piræus,	20	
						Piræus,	14 c.	£52	Sodium Biborate—		
						Rio de Janeiro,	10	22	Genoa,	10 cs.	
									Montreal,	83 brls.	

Sodium Bicarbonate—

Adelaide,	50 kgs.	25 bgs.
Bombay,	301	
Bordeaux,	104	
B. Ayres,	50	10 cks.
Cadix,		10 brls.
Calcutta,	530	7
Constantinople,	25	
Havre,	94	
Hiogo,	290	
Kurrachee,	375	
Marseilles,	122	
Melbourne,	444	46
Montreal,	100	25
Nantes,	34	
Odessa,	150	
Rangoon,	50	
Rotterdam,	25	
San Francisco,	400	
Santos,	10	
Singapore,		4
Smyrna,	20	10 bgs.
Tampico,	10	
Trieste,	100	11
Venice,	180	
Yokohama,	300	

Sodium Silicate—

Melbourne,	80 cks.
Newcastle,	2 dms.
Shanghai,	16
Sydney,	40

Sulphur—

New York,	28 c.	£17
Callao,	3 t.	2 q.
Boston,	475	13

Sulphuric Acid—

Maranham,	1 t.	12 c.	3 q.	£25
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Superphosphate—

Stettin,	1,281 t.	£3,609
Las Palmas,	5	26
Santos,	20	47
Gr. Canary,	5	12

Tartaric Acid—

Havana,	2 c.	£15
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Ultramarine—

Yokohama,	6 brls.
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Varnish—

Havana,	1 cs.
Melbourne,	2

White Lead—

Rio de Janeiro,	50 kgs.
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Whiting—

Boston,	12 cks.
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Zinc Chloride—

Bombay,	3 t.	15 c.	2 q.	£56
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Zinc White—

Maranham,	15 cks.
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MANCHESTER.

Week ending August 2nd.

Ammonium Carbonate—

St. Petersburg,	30 kgs.
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Aniline Oil—

Rotterdam,	1 dm.
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Chemicals (otherwise undes.)—

Rotterdam,	10 cks.
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Pitch—

Antwerp,	87 t.
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Tallow—

Rotterdam,	1 ck.
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Tar Oil—

Antwerp,	8 dms.
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Tar Salts—

Antwerp,	90 cks.
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HULL.

Week ending July 28th.

Aluminium—

Antwerp,	2 cs.
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Ammonium Sulphate—

Dunkirk,	575 bgs.
Hamburg,	647
Rotterdam,	849

Bleaching Powder—

Messina,	4 cks.
Riga,	20
Stettin,	15
Venice,	12

Caustic Soda—

Danzig,	173 dms.
Rotterdam,	10
Riga,	72
Venice,	52

Chemicals (otherwise undescribed)

Antwerp,	14 cks.	3 cs.
Abo,	10	
Bergen,	10	
Bremen,	9	
Bari,		29 brls.
Copenhagen,	12	
Christiania,		1,154 silbs.
Danzig,		30 pks.
Gothenburg,	8	40
Hamburg,	15	15
Konigsberg,	5	5
Libau,	1	243
New York,	50	6
Palermo,	7	
Rotterdam,	39	40
Riga,	18	100
Stettin,	21	4
St. Petersburg,	20	
Trieste,	24	5

Colours—

Fiume,	14 cks.
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Cottonseed Oil—

Antwerp,	200 c.
Bremen,	380
Drontheim,	39
Gothenburg,	69
Hamburg,	1,052
Rotterdam,	1,561

Creosote—

Hamburg,	12 cks.
Kjoge,	400 brls.

Dyestuffs (otherwise undescribed)

Amsterdam,	1 ck.
Antwerp,	75 bgs.
Dunkirk,	1
Gothenburg,	1 cs.
Stettin,	150
St. Petersburg,	45

Guano—

Hamburg,	25 t.
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Linseed Oil—

Bergen,	225 c.
Bremen,	174
Christiansund,	35
Christiania,	666
Christiansand,	120
Drontheim,	131
Gothenburg,	58
Hamburg,	97
Rotterdam,	102
Stavanger,	147

Ochre—

Amsterdam,	21 cks.
Antwerp,	5

Manure—

Rouen,	20 t.
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Painters' Colours—

Amsterdam,	28 cks.	1 cs.	6 pks.
Antwerp,	27	1	78
Abo,	8		6
Bergen,	1 dm.	4	
Bremen,	3		
Bari,	19		
Copenhagen,		1	57
Christiania,			
Catania,	4		
Danzig,	15		
Ghent,	12		
Gothenburg,	1	2	75
Hamburg,	21	4	25
Harlingen,	4		
Konigsberg,	5		
Libau,	14		
Messina,	10		
New York,	295		
Palermo,	10		
Rouen,	3		
Rotterdam,	14	5	
Riga,	20		
Stettin,	88		
St. Petersburg,	40	36	
Trieste,	4		

Pitch—

Antwerp,	168 t.
Abo,	20 cks.
Hango,	23

Slag—

Danzig,	352 t.
Venice,	600

Soap—

Hamburg,	2 cs.
Stettin,	46

Tar—

Amsterdam,	12 cks.
Abo,	75
Copenhagen,	73
Danzig,	3
Hamburg,	13

Yarnish—

Amsterdam,	5 cks.
Gothenburg,	1 cs.
Palermo,	1
Rouen,	1

Zinc Chloride—

Kjoge,	147 cks.	56 dms.
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GLASGOW.

Week ending August 2nd.

Ammonium Sulphate—

Antwerp,	£346
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Bleaching Powder—

Melbourne,	12 t.	9 c.	£85
New York,	7	10	60

Boracic Acid—

Adelaide,	1 t.	3/4 c.	£36
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Borax—

Cape Colony,	10 3/4 c.	£132
Sydney,	1 t.	4 1/2
Melbourne,	2	6 1/4

Castor Oil—

N. S. Wales,	131 glns.	£31
Montreal,	4 t.	3 c.

Caustic Soda—

Adelaide,	5 t.	11 c.	£50
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Chemicals (otherwise undescribed)

Melbourne,	11 c.	£31
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Chloroform—

Adelaide,	£27
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Coal Products—

Tar	
Calcutta,	£141

Colour—

N. S. Wales,	5 c.	£58
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Dextrine—

Melbourne,	£21
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Dyestuffs—

Montreal,	25 t.	1 c.	£128
Dyestuffs—			

Dyestuffs (otherwise undescribed)

Melbourne,	9 t.	4 1/4 c.	£182
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Linseed Oil—

Cape Colony,	1 t.	1 c.	£21
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Litharge—

Montreal,	20 t.	17 c.	£236
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Paint—

Adelaide,	3 t.	7 1/4 c.	£92
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Painters' Colours—

Cape Colony,	£53
N. S. Wales,	93
Peru,	£44. 17s.

Paraffin Wax—

Cape Colony,	5 t.	1 1/2 c.	£154
Rotterdam,	11		230

Plumbago—

Chili,	15 1/4 c.	£22
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Potash Salts—

Cape Colony,	9 t.	17 1/4 c.	£1,548
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Potassium Bichromate—

Melbourne,	1 t.	10 3/4 c.	£73
Antwerp,	10	9 1/4	416

Soap—

New York,	3 t.	3/4 c.	£39
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Soda Ash—

Antwerp,	5 t.	10 1/2 c.	£24
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White Lead—

Cape Colony,	5 t.	4 1/2 c.	£64
N. S. Wales,	15		298
Sydney,	7	17 1/2	161
Adelaide,	2	18 1/4	55

TYNE.

Week ending July 28th.

Alkali—

Antwerp,	7 t.	6 c.
Rotterdam,	6	
St. Petersburg,	25	7
Venice,	7	11

Ammonium Sulphate—

Stavanger,	2 t.
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Barytes Carbonate—

Venice,	6 t.	1 c.
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Bleaching Powder—

Hamburg,	12 t.	17 c.
Lisbon,	9	19
Antwerp,	12	8
Christiania,	28	7
Copenhagen,	9	18
Ghent,	25	
Rotterdam,	29	7
St. Petersburg,	175	8
Venice,	14	5

Carbolic Acid—

Bergen,	2 c.
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Caustic Soda—

Seville,	94 t.	11 c.
Hamburg,	34	
Antwerp,	22	12
Ghent,	1	14
Barcelona,	8	10
Odessa,	10	3
St. Petersburg,	136	5
Venice,	2	18

Litharge—

Copenhagen,	11 c.
Rotterdam,	17

Magnesia—

Odessa,	10	3
St. Petersburg,	136	5

Manure—

Venice,	50 t.	1 c.
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Oxalic Acid—

Barcelona,	10 t.	2 c.
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Paint—

Hamburg,	9 c.
Antwerp,	1 t.
Venice,	9
St. Michael's, Azores,	10

Phosphate—

Seville,	16 c.
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Potassium Chlorate—

St. Petersburg,	5 t.
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Soda—

Hamburg,	2 t.	11 c.
Antwerp,	6	5
Christiania,	15	3
Aalborg,	5	1
Rotterdam,	46	3
Drontheim,	4	19
Stavanger,	1	12

Soda Ash—

Hamburg,	2 t.	2 c.
Bergen,	5	

PRICES CURRENT.

WEDNESDAY, AUGUST 8th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	10/6
„ Glacial	„	50/-	
Arsenic S.G., 2000°	„	0	14 6
Fluoric	per lb.	0	0 3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
„ (Cylinder), 30° Tw.	„	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 1/4
Nitrous	„	0	0 1 1/4
Oxalic	nett	0	0 3 1/4
Phosphoric, 1750°	„	0	1 0
Picric	„	0	1 0
Sulphuric (fuming 50 %/.)	per ton	15	10 0
„ (monohydrate)	„	5	10 0
„ (Pyrites, 168°)	„	3	0 0
„ „ 150°	„	1	5 0
„ (free from arsenic, 145°)	„	1	6 0
Sulphurous (solution) S.G. 1025	„	3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric	„	0	0 11
Arsenic, white powdered	per ton	14	0 0
Alum (loose lump)	„	5	2 6
Alumina Sulphate (pure)	„	5	0 0
Aluminoferri	„	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	„	0	1 4
„ 880=28° B.	per lb.	0	0 3
„ =24° B.	„	0	0 2 1/4
„ Carbonate	nett	0	0 3 1/4
„ Muriate	per ton	22	10 0
„ (sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-
„ Nitrate	per ton	44	0 0
„ Phosphate	per lb.	0	0 10 1/2
„ Sulphate (grey) London	per ton	13	15 0
„ (grey) Hull	„	13	13 9
Aniline Oil (pure)	per lb.	0	0 5 1/2
Aniline Salt	„	0	0 5 1/4
Antimony	per ton	32	0 0
„ (tartar emetic)	per lb.	0	0 9 1/2
„ (golden sulphide)	„	0	0 10
Barium Chloride	per ton	6	10 0
„ Carbonate (native)	„	3	10 0
„ Sulphate (native levigated)	„	45/-	75/-
Bleaching Powder, 35 %	nett	7	10 0
„ Liquor, 7 %	„	3	10 0
Bisulphide of Carbon	„	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	„	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net	per lb.	0	0	8
Magenta	..	..	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1	1
Benzol, 90 % nominal	..	per gallon	0	0	11½
" 50/90	..	..	0	1	0
Carbolic Acid (crystallised 40")	..	per lb.	0	0	6
" (crude 60")	..	per gallon	0	1	7
Creosote (ordinary)	..	..	0	0	1¾
" (filtered for Lucigen light)	..	..	0	0	0
Crude Naphtha 30 % @ 120° C.	..	..	0	0	5
Grease Oils, 22° Tw.	..	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	..	..	1	13	0
Solvent Naphtha, 90 % at 160°	..	per gallon	0	1	3
Lucigen and "Wells" Oils	..	..	0	0	2½
Copper	..	per ton	38	11	3
" Sulphate	..	..	14	5	0
" Oxide (copper scales)	..	..	39	5	0
Glycerine (crude)	..	..	15	0	0
" (distilled S.G. 1250°)	..	..	41	0	0
Iodine	..	nett, per oz.	0	0	9
Iron Sulphate (copperas)	..	per ton	1	4	0
" Sulphide (antimony slag)	..	..	2	0	0
Lead (sheet) for cash	..	..	10	15	0
" Litharge Flake (ex ship)	..	..	13	0	0
" Acetate (white)	..	..	25	0	0
" " brown ")	..	..	15	15	0
" Carbonate (white lead) pure	..	..	20	0	0
" Nitrate	..	..	18	15	0

Lime, Acetate (brown)	per ton	6	0	0
" " (grey)	"	10	5	0
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton	17	0	0
" Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	"	17	15	0
" Borate	per cwt.	2	12	6
" Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	2	2
Naphtha (Wood), Solvent	"	0	3	6
" " Miscible, 60° O.P.	"	0	3	9
Oils:—				
Cotton-seed	per on	21	0	0
Linseed	"	22	10	0
Petroleum, American	per gallon	0	0	5
Stearine	per ton	26	10	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	9
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4½
" Carbonate, 90% (ex ship)	per ton	16	15	0
" Chlorate	per lb.	0	0	6½
" Cyanide, 98%	"	0	2	3
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0
" " (Caustic Potash) 75/80 %	"	20	0	0
" " (Caustic Potash) 70/75 %	"	19	10	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	2	6
" Prussiate Yellow	per lb.	0	0	10½
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	4¾
" Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	17	6
" " (Caustic Soda-ash) 48 %	"	4	2	6
" " (Carb. Soda-ash) 48%	" F.O.B.	4	0	0
" " (Alkali) 58 %	"	3	15	0
" " (Soda Crystals)	"	2	10	0
" Acetate (ex-ship)	"	14	10	0
" Arseniate, 45 %	"	11	0	0
" Chlorate	per lb.	0	0	8
" Borate (Borax)	net, per ton	22	0	0
" Bichromate	per lb.	0	0	3¾
" Hydrate (77 % Caustic Soda)(f.o.b.) net pr. ton	"	10	15	0
" " (74 % Caustic Soda)	"	9	15	0
" " (70 % Caustic Soda)	"	8	15	0
" " (60 % Caustic Soda)	"	7	15	0
" " (60 % Caustic Soda, cream) (f.o.b.)	"	7	12	6
" Bicarbonate	"	5	12	6
" Hyposulphite	"	5	10	0
" Manganate, 30%	"	16	0	0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9	0
" Nitrite, 98 %	per ton	29	10	0
" Phosphate	"	15	0	0
" Silicate (glass)	per ton	5	7	6
" " (liquid, 100° Tw.)	"	4	5	0
" Stannate, 40 %	per cwt.	3	0	0
" Sulphate (Salt-cake)	per ton.	0	17	6
" " (Glauber's Salts)	"	1	5	0
" Sulphide	"	8	10	0
" Sulphite	"	5	9	6
Strontium Hydrate, 100%	"	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7¼
" Barium, 95 %	"	0	0	5
" Potassium	"	0	0	7½
Sulphur (Flowers)	per ton.	7	5	0
" (Roll Brimstone)	"	5	7	6
" Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26%)	"	2	7	6
Tallow	"	25	0	0
Tin Crystals	per lb.	0	0	6
English Ingots	"	69	0	0
Zinc (Spelter)	per ton	15	10	0
" Chloride (solution, 96° Tw.)	"	5	10	0

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CURRENT TOPICS.

THE SUGGESTED NEW ELEMENT.

THE Chemical Section of the British Association was all agog last Monday. There had been talk of an announcement of considerable interest being about to be made, and when the rumour assumed definite shape, the Mathematical and Physical Section adjourned to attend the meeting of the Chemical Section in the large theatre of the Museum. It is strange that in 1892, when the supposed new element, Masrium, was brought before the Chemical Society, Lord Rayleigh was busily occupied on the densities of hydrogen and oxygen, and that his work lead to the investigations which, it is thought, have revealed a new elementary constituent of the air. Masrium, by-the-bye, has been little heard of since. There is a reticence about all that has been said by Lord Rayleigh and Professor Ramsay, however, which promises more than if they had jumped to the conclusion that their newly-discovered body was necessarily an element.

As things stand at present they only advance the fact that nitrogen prepared from the air is denser than that obtained from other sources. Following this up, spectrum analysis has shown that after passing electric sparks through air, absorbing the nitrous gas formed with potash and the oxygen with pyrogallate, a gaseous something is left, which gives a spectrum which does not agree with either oxygen or nitrogen. The same spectrum can be obtained by absorbing the nitrogen of the air with magnesium. By this treatment the density of the remaining gas rises nearly to 20. The new gas is even more inert than nitrogen, though it is hard to imagine such a gas.

It is, indeed, interesting to learn that the mechanical mixture we have so long known as air, has contained another constituent of which we were wholly ignorant, and its recognition and isolation may lead to the solution of one or two points which at present are almost inexplicable. It is thought that it may lead to further enlightenment upon the gases which are occluded from steel.

As far as its claim to the title of an element is concerned, nothing definite has been stated, though there are the following facts to go upon, which show there is a possibility of the new gas being an element. Its density is approximately 20, and it is very inert. Now, according to Mendeléeff's periodic arrangement of the elements, there are three gaps in the Platinum group, to fill one of which an element having an atomic weight of from 19 to 23 is wanted. And there at present the matter comes to a standstill.

Nevertheless there is great credit due to the discoverers in having succeeded in finding that the nitrogen obtained from the atmosphere is not pure, and in having further isolated about 100 cubic centimetres of that impurity in the shape of a gas, having a characteristic spectrum of its own. Should the new gas prove to be an element, it will be a

strange, though fitting, coincidence that the announcement of its discovery should have taken place when the British Association was sitting at Oxford after a lapse of thirty-four years, seeing that Oxford nurtured such pillars of science as Hooke and Boyle.

THE UNITED STATES TARIFF BILL.

The modified Wilson Bill has passed the House of Representatives and also through the Senate. It is doubtful as yet whether the President will sign the Bill or allow it to pass into law without his signature. Owing to formalities, however, the Bill cannot be brought before the President till the 27th inst. Unless the date is changed, the Bill will come into force as soon as it becomes law, since the measure as it stands was fixed to come into force on August 1st.

There is one amendment to this Bill of importance to the chemical industry, and that is the amendment proposed by Senator Hoar, and adopted by the Senate, making all alcohol used in arts and manufactures duty free. That is to say, any manufacturer finding it necessary to use alcohol in the arts or in any medicinal or other compound, on giving satisfactory and substantial evidence to the revenue collector for his district, shall be entitled to the rebatement of any tax he may have paid upon the alcohol so used. Important as this matter is to numbers of industries, there has been no explicit information given as to whether this free alcohol clause has been retained in the Bill as now passed. It is highly probable that as part of the principal measure it is as good as passed, and as the free sugar, coal, and iron Bills have got safely through, there is every hope and prospect that a similar fate may attend this important amendment. The President, however, has yet the option of altering certain clauses, and we are informed on good authority that it is only misleading to attempt any conclusive statement about details of the Bill until the measure has been passed into law by the President. Till then drafts of the Bill can only be considered tentative.

THE BRITISH ASSOCIATION.

CHEMICAL SECTION.

Thursday, 9th.—The chief feature of the day was the address of the President of the Section, Prof. H. B. Dixon (Owens College, Manchester). In his address he dealt at first principally with the researches of Hooke Boyle and Mayow made at Oxford about 1660, and ultimately pleaded hard for the training of students in research work. When the Association last met at Oxford, in 1860, the President of the Chemical Section did not deliver an address. Such, however, was not the case this year.

Professor Dixon said there was one thing for which chemists should be grateful, and of which Oxford might be proud, and that was that under her influence first grew up the idea that chemistry was no mere drudge of medicine, but a science to be studied purely for itself. Boyle's writings contained the record of numerous important chemical observations—*e.g.*, the synthesis of nitre, and the preparation of nitric acid by the distillation of nitre with oil of vitriol. He discovered several of the delicate tests we still use—*e.g.*, solution of ammonia as a test for copper, silver nitrate as a test for chlorides, gallic acid as a test for iron. Like Van Helmont, Boyle recognised difference in gases, but did not distinguish them as being something different in kind from air. The genius of Robert Hooke was in sharp contrast with that of Boyle. Quick, restless, imaginative, he sprang from discovery to discovery. We could hardly name a discovery of this age which Hooke had not in part anticipated and claimed as his own. In 1665 Hooke published in the "Micrographia" a description of flame and the phenomena of combustion which perhaps had never been surpassed (*C. T. J.* 351, p. 95). How far he was indebted to Boyle appeared from the records of their co-operation. Mayow went further and distinctly showed the dual nature of the air. To him we owed some fundamental facts in chemistry; but the limits of his work were obvious. He detected the existence of what we call oxygen gas in the air, and demonstrated some of its most remarkable properties. He did not

isolate the gas, or show what became of it in combustion: he did not always distinguish between the gas itself and the heat produced by its action. But the advance he made was extraordinary—not so much in the conclusions he drew as in the experiments and arguments he founded them on. The Oxford School of Chemistry was a school of research. Boyle gave no instruction in the ordinary sense; and, indeed, had no official connection with the University. But he thought instruction in chemistry should be given in the University, and he brought over a chemist from Strasburg and set him up as a lecturer, with rooms next his own and the use of his laboratory. In spite of Boyle's private position, his blameless life, his devoutness, and his charity, his work aroused bitter animosity in Oxford. He was attacked in the University pulpit, in public orations, in private squibs; his theories were described as destructive of religion, his experiments as undermining the University. But what chiefly drew forth the indignation of his opponents was that he, a gentleman by birth and fortune, should concern himself with low mechanical arts. Against these attacks Boyle replied with irresistible logic. His vindication of the nobility of scientific work constitutes one of his greatest claims on our gratitude. Proceeding, Professor Dixon said, now chemistry in modern Oxford is accorded a place side by side with older studies. No one can complain that scholarships are not offered broadcast, that money has not been freely given for laboratories; and yet the student does not feel around him the atmosphere in which an experimental science should be cultivated. We see chemistry endowed and extended, we do not see it respected by the bulk of students and of learned men. While holding strongly that the elements of physics and chemistry form a necessary part of a liberal education, I believe we have made two mistakes with regard to the teaching of science. We have by our science scholarships encouraged too early specialisation at school; we have overburdened our undergraduates here with a multitude of facts they cannot retain. A boy specialises for two years at school; he learns a prodigious array of facts from the latest text-books, and also acquires some skill in the art of quickly reproducing what he has learnt. He wins a science scholarship. We then tell him he must go back to, or begin, the study of the classical languages we look on as essential for our degrees. By a certain time he must reach a certain (rather low) standard, or his scholarship lapses. He learns that it is advisable to get assistance from those who have made a special study of preparing candidates to pass examinations. He crams; or he goes to a crammer and is crammed. Let us suppose, as is usually the case, that the obstacle is Greek. I will not deny that the standard of Greek demanded may imply some important discipline at school, and some real culture of the mind, provided the instruction given is on wholesome lines and forms part of a liberal course. Got up in a hurry, as it too often is, solely with the object of passing, it means time and effort wasted, and worse than wasted. It is of no value in itself, for it is forgotten in less time than it took to acquire; and it gives the student the first pernicious taste of that superficiality and false knowledge it should be our special aim to remove. My second complaint is that we teach too many facts. They are not all important. After three or four years' steady accumulation our men go into the schools walking dictionaries of chemistry. Parents not unnaturally think that their sons, after four years of college training, should be fit to take responsible places wherever chemists are in demand. But manufacturers, as a rule, do not care for University graduates. I cannot blame them. We cannot guarantee that the men we send out with honours in chemistry can attack a new problem, can work out new processes, can prepare new dyes. German manufacturers, on the other hand, prefer a University graduate, for they have in their degree a guarantee that the student has successfully attacked some unknown problem, and added to the store of knowledge.

THE NEED FOR TEACHING RESEARCH.

The country cries out for technical instruction. It is not afraid of spending money; indeed, many well-meaning bodies are spending—and in some cases, I fear, wasting—money with a prodigal hand. And what, after all, is the great need? Speaking for the subject I know best, I say unhesitatingly that we want scientific chemists who can and will make discoveries; we want men trained not only in what has been done, but taught how to set about winning new knowledge. The Universities, I urge, should teach the art of research. This is what is wanted, and this, as all experience shows, is what the Universities can do better than any one else. And no exorbitant amount of time need be demanded for this purpose. If the student has learnt the elements of science at school, three years at most should suffice for the preliminary degree course. The graduate, armed with the necessary manipulative skill, would then start research work under proper guidance as the second and more valuable portion of his University training. And here the new research degree (by whatever name it may be called) may give us most valuable help. I hope that serious work will be demanded for it, and that the research course will become the recognised avenue to science fellowships and lectureships in the University. Two years would show what the man had in him. In that time either he would have proved himself no chemist, or he would

have made some useful advance in our knowledge, and would have secured a testimonial of fitness such as no examination could confer. Five years in all—the *minimum* time now laid down for a medical qualification—would surely not be too much to ask for the chemist's training. No extra expense need be incurred to carry out this plan. Some of the college scholarships at present offered on entrance might be reserved for research students on graduation. These studentships should be the reward of the successful undergraduate career. At Owens College our most successful endowment in chemistry has been the Dalton Scholarship, awarded for a research done in the college laboratories. In the Victoria University we have lately founded scholarships for the encouragement of research, which are awarded on the results of the final examination in the several Honours Schools. I plead, then, for greater encouragement of chemical research in Oxford. Make it part of the normal course of training for every one who wishes to be a chemist in fact as well as in name. Consider not only the country's need, but the value of research itself as a mental training, as stimulating and strengthening the activities, as creating that sense of devotion and discipleship which becomes the tradition of every great school of learning. Lastly, let us own that we ourselves—the teachers here—have been perhaps too critical, too much afraid of making mistakes, forgetting that the witty American's remark—that he who never makes mistakes never makes anything—has a far wider application in science than in politics. Only by practice and drill can we learn to collect our strength and swing it with precision into acts.

Friday, 10th, a number of papers were read. Among the more important were the following:—A paper on New Methods of Spectrum Analysis, by Professor W. N. Hartley, in which it was shown that both metals and non-metals may under certain conditions give band spectra, and under other conditions line spectra, and the old view that band spectra are characteristic of non-metals and compounds is without foundation. He described in detail the character of the spectrum of the flame of a Bessemer converter at various stages of the "blow," and pointed out the chemical changes to which they are due. Photographs of the spectra were exhibited.

Mr. J. W. Thomas (Gloucester) read a paper on "The Chemistry of Coal Formation."

Dr. S. Rideal (London) read a paper on "The Iodine Value of Sunlight in the High Alps." The experiments, which are a continuation of those described in previous years, confirm the earlier observations, and show that the chemical activity of sunlight during winter in the high Alps is very much greater than at the lower levels and enormously greater than in large towns at the same season. He suggested that this great activity of the light may play an important part in the well-known beneficial effects on health which make the high Alps a resort for invalids.

Professor Dixon (President of the section) thought it would be of great interest to ascertain whether this increase in the activity of sunlight continued at the same rate as the highest summits were reached. Some experiments of his own indicated that there was no great difference between a height of 12,000ft. and a height of 15,000ft.

On Saturday the Chemical Section did not meet.

Monday, 13th, was a very busy day and was productive of an incident likely to cause it to become a red-letter day, as a

NEW CONSTITUENT OF THE ATMOSPHERE

was announced by Lord Rayleigh and Professor Ramsay. The section of mathematical and physical science, over which Professor Rucker presides, adjourned their own proceedings and assembled in the theatre of the university Museum for the purpose of hearing the formal publication. Lord Rayleigh calls the new constituent a gas characterised by extreme inertness. So far no characteristic chemical reaction has been found, but his lordship has obtained as the value of the density a number, namely, 19.09. This result is probably low, the continued sparking showing that there is still some nitrogen present. Experimenting in company with Professor Ramsay he has obtained something like 100 centimetres of the substance. Sir Henry Roscoe led off the discussion, which was of a complimentary character. Professor Emerson Reynolds (Dublin) pointed out that there was room for three spaces with an atomic weight of between 19 and 23 in Mendeléef's table.

Among other papers that followed was one by Prof. Roberts Austen on "The Electrolysis of Glass." A new apparatus for determining the freezing points of dilute solutions, and a colour measuring apparatus for dilute solutions were described, and Mr. J. W. Rodger gave an account of the experiments which had been conducted by Professor Thorpe and himself on the relations between the viscosity of liquids and their chemical nature.

The president of the Association next year will be Sir Douglas Galton, and the meeting will be held at Ipswich.

OIL VIA THE SHIP CANAL.—Among the various articles imported at Manchester recently, there has been the remainder of a large cargo of lubricating oil for the Standard Oil Co. A considerable quantity of pig lead and the first consignment of raw lard have also been discharged at the docks.

Our Book Shelf.

SELECT METHODS IN CHEMICAL ANALYSIS. By W. Crookes, F.R.S. 718 pp. including Index. 67 woodcuts. 3rd edition. London: Longmans Green and Co. 1894. 21s.

In preparing the third edition of this well-known work, it has been found necessary to supplant some of the methods given in the earlier editions with more recent ones, although the book has been enlarged as it is. So doing is only in accord with the aims of this work, which is intended to be essentially a collection of select methods and not standard methods.

It requires some care in judging the merits of this work to remember its aims and scope. The idea of presenting a collection of analytical methods not generally known or used, but which, all the same, are reliable or specially suited for particular cases, naturally shuts out a number of processes which might at first reasonably be looked for. Volumetric methods generally are in consequence few and far between. Bearing in mind, therefore, that the book is intended to present a collection of useful and tried analytical methods which are not in everyday use, or recognised standard methods, the present edition may safely be said to have been brought up to the times, thereby forming a valuable source of reference in cases where difficulties of analysis present themselves. The rarer metals are very extensively treated. In estimating alkalies in insoluble silicates the process of J. L. Smith is fully explained, and from actual experience we can support what is said in favour of this excellent method. The first ten chapters deal chiefly with the metals, the recognition and estimation, and the analysis of some of their more important compounds. Under sulphur, in Chapter XI, there is a good deal of interesting information on the analysis of pyrites, while the nitrogen section of the same chapter, which includes the estimation of nitrites is useful and instructive.

The chief feature of the new edition, however, is the addition of a number of electrolytic methods of separation, which were first published by Dr. Classen. For the rapid analysis of gases Elliott's apparatus is recommended. Chapter XV, the last but one, is also an excellent chapter, dealing with special apparatus for filtering and other operations entailed in analytical operations.

LESSONS IN ORGANIC CHEMISTRY. By G. S. Turpin. Part I. 140 pp. including Index. 33 Illustrations. London: Macmillan and Co., 1894. 2s. 6d.

This work is arranged to afford an elementary text-book of organic chemistry, its scope being limited to the requirements of the South Kensington Elementary Syllabus. It is a companion to Inorganic Chemistry for beginners, being one of the Elementary Science Class Book series with which the publishers are identified. Throughout the woodcuts are out of the usual run of class-book illustrations. It would be superfluous to detail the ground covered, but it is necessary to add that it is well covered, many of the various branches being treated in a different manner from the stereotyped text-book fashion. Owing to the improved tone of this class-book its existence is fully justified, which is not always the case with some elementary text-books which now abound *ad nauseam*. The chapter on sugars is made interesting by a little information not directly required for cramming purposes. An error occurs in the description of the manufacture of soap likely to mislead elementary students. Soap is usually made in a large iron vessel called a "kettle," and not by boiling oil and alkali "in large open vats." As a whole, however, the work is free from the usual text-book errors. It can, therefore, be recommended as a reliable and well-arranged handbook for elementary students.

THE DECOMPOSITION OF THE FIXED ALKALIES AND ALKALINE EARTHS. By Humphry Davy (1807-1808). 51 pp. Edinburgh: W. F. Clay, 1894. 1s. 6d.

This little work constitutes the sixth of the Alembic Club Reprints, of which there are three more yet to appear. As the title indicates, this reprint gives the original description of Sir H. Davy's work on the separation of metallic potassium and sodium. The first part of the reprint consists of the Bakerian Lecture, delivered by Davy, in 1807; the second part being a portion of his subsequent paper to the Royal Society, in which he gives a more detailed account of the properties of the metals he had isolated, and also some particulars of his efforts to separate the metals of the alkaline earths. The first portion of the reprint deals almost exclusively with experiments made to accomplish the decomposition of soda and potash. From beginning to end it is one of the most readable of these reprints that has appeared.

THE NEW GAS.

IN a letter to the *Times*, Prof. J. Dewar contributes the following suggestions about the supposed new element: When air is liquefied it does not appear as a clear transparent substance, but as a fluid containing more or less of a white deposit, due to the solidification of carbonic acid and other gaseous impurities, which floats in the transparent liquid oxygen and nitrogen. When air under high compression is used to produce the liquid in quantity then, however carefully it may be purified before compression, it always takes up traces of foreign substances in its passage through the compressors, so that the amount of white solid associated with the liquid air may vary considerably, but is always present in greater or less quantity.

When I have been asked during the last year or two what is the nature of the solid, in so far as it does not consist of known atmospheric impurities, my answer has always been that I could not say, not having made a special study of the substance. Can this substance, which has been so often seen in the theatre of the Royal Institution, be in the main anything else than Rayleigh's new nitrogen in the solid form? If a hitherto unrecognised substance, elemental or compound, exists in air, having a density of about 19, and present to the extent of even a minute fraction of 1 per cent., chemists would infer that the material must be less volatile than nitrogen or oxygen, and, therefore, must be condensed with them in the process of liquefaction. Further, as the nitrogen of liquid air boils off first, leaving the oxygen with its higher boiling-point behind, so the new substance ought to remain liquid or solid after both these substances have distilled off. If the white solid (known impurities of course excepted) be not the new gas of Rayleigh, then the gas must liquefy along with the nitrogen and oxygen and be approximately equal in volatility with one or the other. Then, on the other hand, the white substance certainly does not amount to 1 per cent. of the liquid, and whenever I have casually examined it the substance has turned out to be a mixture of nitrous oxide, carbonic acid, and some other impurity. Therefore, the amount of any unknown substance must necessarily be extremely small. One is forced to the conclusion that if the new nitrogen is present to the extent of $\frac{1}{2}$ to 1 per cent., and has a density of about 19, then it is, indeed, a strange substance, being as volatile as nitrogen or oxygen, and, therefore, not capable of separation by difference of boiling-point.

These facts in no way detract from the interest of Lord Rayleigh's discovery; they only add some additional interest to the subject, and may suggest some queries to be answered by further investigation.

OUTPUT OF BRITISH MINERALS.

THE Home Office has issued the annual statistics showing the output of minerals produced in the United Kingdom of Great Britain and the Isle of Man during the past year (1893), from which the following has been specially abstracted:—

The total value at the mines and works of the thirty-one different kinds of minerals which the country produced was £70,767,651, a decrease of £11,583,109 as compared with 1892. Owing to the coal strike, coal has played an important part in the falling off. In 1892 there was £66,050,451 worth produced; last year there was £55,809,808 worth; salt, £861,401, against £735,222; iron ore, £2,970,632, against £2,827,947. The habitat of the minerals is also interesting. Aluminium comes from Northumberland and a little from Worcestershire. Arsenic chiefly from Cornwall and some from Devonshire; there is a refinery also in Glamorganshire. Flintshire supplies cobalt and nickel ore, but the mine is closed at present, no ore having been produced since 1890. Gunflints sound more interesting from an antiquarian than a commercial point of view, but last year the knappers at Brandon produced 4½ million gunflints. Lancashire possesses a bismuth and magnesium and potassium refining works. Oil shale, as is well known, is obtained chiefly from Scotland, but England and Wales (principally Staffordshire) contribute some 8,000 tons annually. Petroleum, though occurring elsewhere, is only being actually obtained from North Staffordshire. In connection with petroleum, it is interesting to note that last year there was an increase in the quantity of foreign oil imported both from Russia and America, but notably from the States. The figures for 1893 were: from Russia 40,908,961 gallons, America 112,904,398 gallons. No plumbago was raised during the year. Strontia sulphate is got from Gloucestershire and Somersetshire. The Uranium Mines Co., Limited, in Cornwall, produces uranium ores only, the mine being worked for nothing else. Wolfram ores are worked in two mines in Cornwall, of which one is temporarily closed.

In the table, which follows, the quantities and values for 1893 are given, while for the sake of comparison the quantities for 1892 are also shown. A comparison of the totals shows there has been a net decrease in the value of the minerals produced. There are, however, a good many changes from last year in the items which have contributed to

the decrease (c.f. *C. T. J.* 327, p. 128). The decrease in the output of coal, as is to be expected, is serious, being nearly five times greater than the decrease in 1892. There was no antimony ore raised at all. In manganese ore and phosphate of lime also there is a very marked falling off, amounting in round figures to 78% and 73% respectively. In regard to phosphate of lime in particular, the output in 1893 is lower than it has ever been since 1874, the nearest figures being 9,894 tons in 1887. The only items which show an increase are bauxite, arsenic, fluor spar,* iron pyrites, lead ore, petroleum,* slates,* and strontia sulphate. The following are the returns:—

TABLE I.
GENERAL SUMMARY OF THE MINERAL PRODUCE OF THE
UNITED KINGDOM AND THE ISLE OF MAN.

Description of Mineral.	Quantity.	Quantity.	Value at the Mines and Openworks.
	1892.	1893.	£.
Alum clay (bauxite) .. Tons	7,322	8,740	4,150
Alum shale	2,922	2,115	264
Antimony ore	6	Nil.	—
Arsenic	5,114	5,976	57,694
Arsenical pyrites	4,497	3,036	2,948
Barytes	24,247	22,343	25,363
Bog ore	15,363	10,747	2,686
Clays (excepting ordinary clay)	3,103,852	3,065,208	817,419
Coal	181,786,871	164,325,795	55,809,808
Copper ore	5,995	5,346	12,961
Copper precipitate	270	230	2,210
Fluor spar	171	215	161
Gold ore	9,990	4,489	7,657
Gypsum	147,540	143,486	59,369
Iron ore	11,312,675	11,203,476	2,827,947
Iron pyrites	13,967	15,837	7,292
Jet Lbs.	929	888	177
Lead ore Tons	40,024	40,808	280,539
Lignite	4,247	3,264	816
Manganese ore	6,078	1,336	762
Ochre, umber, etc.	12,131	10,534	13,880
Oil shale	2,089,937	1,956,520	489,130
Petroleum	218	260	488
Phosphate of lime	12,200	3,300	5,771
Salt	1,956,524	1,924,029	735,222
Slates and slabs	418,241	438,993	1,107,626
Stone, etc.	—	—	7,773,743
Strontia sulphate	5,066	5,812	2,325
Tin ore	14,357†	13,689	637,053
Uranium ore	37	25	500
Wolfram	125	22	420
Zinc ore	23,880	23,754	81,270
Total	—	—	£70,767,651

† Corrected figures.

On a closer inspection of the returns it will be noticed that salt again shows a falling off in production. The decrease, however, is only 32,495 tons, against a decline of 87,047 tons in 1892. Wolfram also shows a decided falling off. Considering the state of the Scottish oil trade the decrease in the output of shale compares favourably with 1892, with a decline of 133,417 tons in 1893, against 271,182 tons in 1892. It is encouraging to note that where alum clay (bauxite) in 1892 showed a falling off in production of over 3,000 tons, the returns for 1893 indicate an increased production of some 1,400 tons.

In addition to the general summary of the mineral products of the United Kingdom, the returns contain tabulated details of the production of the various minerals mentioned in the foregoing, from which we cull the following figures: The highest monthly price for best selected British copper during 1893 was £52. per ton, and the lowest price £45. The mean price for the year was £48. 3s. 11d., while the corresponding figure for foreign copper (Chili bars) was £43. 16s. 4d.

Some interesting figures as to the amount of burnt cupreous iron pyrites which have been treated at the various metal extraction works of Great Britain (18 in all) are furnished by Mr. T. W. Bird, of Liverpool. The total amount of burnt ore treated in 1893 was 340,175 tons, the estimated yield being 1,564 ounces of gold, 272,139 ounces of silver, and 12,246 tons of metallic copper. Below is given an interesting table showing the amount of manganese ore imported into the United Kingdom, the ore being obtained from sources other than those included in the above statistics.

* Showed an increase in 1892.

TABLE II.

MANGANESE ORE IMPORTED INTO THE UNITED KINGDOM.

Countries whence imported.	1893.	
	Quantity.	Value.
	Tons.	£
From Australasia	917	1,940
British North America.....	—	—
Russia.....	59,478	176,307
Sweden	2,293	6,153
Belgium	—	—
France	8,836	23,392
Italy	—	—
Portugal	1,970	5,910
Spain	2,278	6,679
Turkey	—	—
United States of America.....	183	573
Chili	30,174	94,258
Other countries	15,644	40,772
Totals.....	121,773	£355,984

The production of oil shale is, we feel sure, of sufficient importance to warrant the reproduction of the following table, which gives the output from mines which come under the Coal Mines Regulation Act, thus causing the total to fall slightly below the figures for the total production in the United Kingdom:—

TABLE III.

County.	Quantity.	Value at the Mines.
	Tons.	£
ENGLAND AND WALES.		
Cumberland	2,593	2,169
Flintshire	1,754	
Staffordshire, North	4,036	
Yorkshire, East and West Ridings	295	
Total	8,678	2,169
SCOTLAND.		
Edinburghshire	758,511	486,961
Fifeshire	5,014	
Lanarkshire (East)	94,672	
„ (West) and Renfrewshire.....	23,855	
Linlithgowshire	1,061,034	
Renfrewshire (included with West Lanarkshire)	—	
Sterlingshire (East)	4,756	
Grand Totals.....	1,956,520	£489,130

Since phosphate of lime shows such a striking decline the following table is interesting, as it shows that the imports have increased, if the net production has fallen off so suddenly. The increased import is notably from France and the West Indian Islands:—

TABLE IV.

IMPORTS OF PHOSPHATE OF LIME.

Countries whence Imported.	1892.	1893.
	Quantity.	Quantity.
	Tons.	Tons.
Belgium	65,079	62,298
France.....	18,239	34,866
Portugal	971	—
United States of America.....	201,565	195,785
Dutch West India Islands	6,648	5,636
British North America	7,814	5,068
British West India Islands	2,473	7,690
Other Countries.....	11,341	12,184
Totals.....	314,130	323,527

Salt naturally interests a great many of our readers, and doubtless they will like to learn to which countries the largest quantities of salt

are exported annually. In the table herewith the figures for 1892 and 1893 will be found:—

TABLE V.

QUANTITY AND VALUE OF SALT (ROCK AND WHITE) EXPORTED FROM THE UNITED KINGDOM.

Countries to which Exported.	1892.	1893.	
	Quantity.	Quantity.	Value.
	Tons.	Tons.	£
Russia	12,996	14,015	7,582
Sweden and Norway	19,481	24,746	14,250
Denmark	32,898	37,956	18,048
Germany	21,484	22,892	12,017
Holland	15,123	25,157	7,477
Belgium	28,595	28,325	14,863
West Coast of Africa	33,441	35,755	43,086
British East Indies.....	261,185	244,020	161,461
Australasia	45,655	48,976	58,005
British North America	62,071	70,022	55,993
United States of America.....	91,322	59,862	79,249
British West Indies	5,324	4,648	6,645
Foreign West Indies	11	72	170
Chili.....	9,420	1,620	2,011
Brazil	3,259	8,395	9,460
Other Countries	11,871	9,674	14,183
Totals.....	654,136	636,135	£504,500

Seeing the large quantities of minerals imported from abroad, we give the following abstract of the summary of the output of minerals and metals in British Colonies and possessions, in addition to the statistics for the United Kingdom. Owing to the difficulties of compilation the official returns are always a year behind the statistics for the United Kingdom. The figures as under are therefore for 1892:—

TABLE VI.

PRODUCTION OF MINERALS AND CERTAIN METALS IN THE BRITISH COLONIES AND POSSESSIONS.

Abstract of General Summary.

Description of Mineral.	1892.	
	Quantity.	Value.
		£.
Asbestos	Tons 5,394	79,831
Barytes	„ 280	259
Coal (including some Coke).....	„ 10,473,848	4,180,890
Cobalt Ore.....	„ 76	1,110
Gold	Ozs. 3,322,922	12,260,276
Gypsum	Tons 203,918	47,621
Kauri Gum.....	„ 8,705	517,678
Manganese Ore	„ 1,344	4,918
Mica	„ —	20,961
Nickel	Tons 2,704	721,918
Ochre	„ 339	1,161
Oil Shale	„ 74,197	136,079
Petroleum	{ Galls. 8,725,331	25,108
	{ Brls. 779,753	201,881
Phosphate of Lime	Tons 13,127	36,207
Platinum	Ozs. —	719
Pyrates.....	Tons 88,542	102,800
Salt	„ 947,239	399,993

In conclusion, we regret, owing to the limitation of space, being unable to give but a brief abstract of the returns, which contain many items of interest to the Chemical trade. Should any readers, however, desire further information, we shall be pleased to do our best to supply the same.

A CHEMICAL PUN.—The *American Soap Journal* vouches for the following joke coming from Berlin. It relates to Count Wilhelm Douglas, one of the wealthiest and most popular members of the German nobility:—The Count, though of Scotch descent, is quite Teutonised, and does not speak a word of English. His revenues are mainly derived from a large potash mine in the Hartz district, and on that account he is known in Berlin by the sobriquet of the “Caligraph” (kali=potash, graf=count.)

THE LARDARELO BORIC ACID WORKS.

IN a paper describing these works read before the Baltimore Section of the American Chemical Society, Mr. William P. Mason says so far as he is aware no recent description of these famous works has been given, and there is certainly wide-spread ignorance as to the best route by which to visit them. The most convenient starting point is Pisa, whence a train may be taken for Cecina. The rest of the journey, after changing at Cecina and alighting at Volterra, must be made by driving.

Upon crossing a ridge within half-a-mile of the end of the journey, the boric-acid plant, and its attendant village, suddenly come into view, and, with the numerous jets of native steam rising from and among the buildings, the resemblance is very strong to a busy New England factory town.

All of the district now covered by the works was originally owned by the people of the neighbouring ancient town of Monte Cerboli, but having been held by them as of little value, it was very cheaply obtained in 1818 by a poor young Frenchman who detected the presence of boric acid in the steam, and who was shrewd enough to appreciate the value of his discovery. He at first formed a company for the purpose of developing the property, but later acquired entire possession himself.

The boric acid, to the extent of one-tenth of one per cent., is contained in the native steam that issues from the earth through numerous orifices, all of which have been tubed to a greater or less degree.

These tubings are mostly of eight-inch pipe, and extend into the earth at varying distances, some a few feet and others over three hundred. Certain of the fumaroles are entirely artificial, having been bored after the manner of artesian wells. The boring tool, when it reaches the steam zone, usually drops suddenly a yard or more, and immediately thereafter steam escapes with much force. The temperature of the issuing steam varies in the different outlets from 98°—140° C., and it rushes from the pipes with great noise and power.

Ordinary spring water is lead into a circular brick cistern about thirty feet in diameter, and an eight-inch pipe, conducting natural steam passes through the cistern wall about one foot below the water surface.

The issuing steam, which impregnates the water with boric acid, causes a fountain of several feet in height to play in the cistern.

After an interval of twenty-four hours the contents of this cistern are piped into another similar one on a lower level, and are then subjected to a further injection of steam for an additional twenty-four hours, after which the solution passes to a square settling basin where a greyish mud, of exceedingly fine state of division, separates.

This mud, which contains more or less boric acid, is given away to the country people who use it as an application for diseases of the hide occurring among sheep and cattle.

From the settling tank the boric acid water passes to evaporating pans (forty in number) made of lead. These pans are six feet wide, 150 feet long, and eight inches deep. They are slightly inclined, and are divided by small ridges two-and-a-half inches high crossing them transversely every two feet. The liquid enters at one end and slowly flows over the step-like divisions to the other, the rate of inflow being made equal to that of evaporation.

When, in the judgment of the attendant, the concentration has been carried far enough, the flow is cut off, and the hot concentrated liquor is brushed out by brooms into crystallizing tanks, ten by thirty feet in size, and allowed to cool.

The deposited crystals of boric acid are removed by wooden scoops, drained in baskets, and the mother liquor is returned to the evaporating pans.

The crystals are spread upon a steam-heated drying floor protected by a shed-like building thirty by fifty feet in area, and when dry are placed in bins for storage. Shipment is made in casks holding about 1,000 pounds each. The heating of the evaporating pans and drying floor, in short heating of every description throughout the establishment, is by native steam.

About 200 hands are employed in the works, and the annual output is approximately 1,700 tons, all of which is shipped to England, *via* Leghorn.

Count Lardarel appears to have a careful eye for the welfare of his employees, as is evinced by the substantial manner in which the village is built, its cleanliness and the attempts made to adorn the streets. He was awarded a medal at the Paris Exposition for his contributions towards the betterment of social conditions, in addition to an award made for his manufactures.

The statement in our standard works of reference "boric acid is recovered at both Monte Cerboli and at Lardarelo," is confusing, as they are practically one and the same place; and the dimensions given of the artificial lagoons being "100 to 200 feet in diameter," is a great exaggeration.

IMPORTS AND EXPORTS FOR JULY.

THE Board of Trade Returns for the past month have proved generally unsatisfactory. The universal prevalence of a feeling of disappointment is a pretty sure indication that an improvement in trade was being anticipated.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE

ARTICLES.	Quantities.	
	1893	1894.
Margarine	Cwt. 101,352	17,019
Copper Ore and Regulus	Tons. 21,674	14,803
Hides, dry and wet	Cwt. 89,828	81,441
Nitrate of Soda	Tons. 3,814	6,506
Tallow and Stearine	Cwt. 141,097	157,240
Tin	" 44,687	48,786

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 352,568	444,000
Cement ..	Tons. 42,574	35,964
Coal and Coke	" 2,960,680	2,911,679
Copper, all kinds	Cwt. 116,306	67,637
Iron and Steel	Tons. 276,209	228,478
Chemical Manures	" 32,824	41,929
Oils, seed	" 5,513	3,338
Salt	" 67,831	67,075

THE SALT TRADE.

THE Official Returns for the past month show a slight decrease in the shipments as compared with 1893. The July exports of white salt amounted to 55,967 tons, against 59,026 tons in the corresponding month of last year. The average for the last ten years is 75,718 tons, for the first five 86,435 tons, and for the last five 65,001 tons. The Northern United States have taken but little salt. The policy of buying from hand-to-mouth and reducing all duty-paid stocks is being followed in anticipation of an early settlement of the tariff question. There seems no disagreement on the matter of free salt. All parties appear to have consented to admit it as a raw product duty free. The Government annual statistics of salt production have just been issued. The total output of rock salt was 192,960 tons, of which 150,877 tons were produced in Cheshire, 775 tons in Lancashire (Preesall), and 44,308 tons in Ireland. In the previous year the production was 175,258 tons. The following are the statistics referring to white salt made from brine, including salt in brine used in the ammonia soda process:—Cheshire, 1,212,362 tons; Lancashire, 37,488 tons; Durham and Yorkshire, 289,198 tons; Worcestershire, 192,021 tons; total, 1,731,069 tons; decrease on preceding year, 50,197 tons.

RIVER POLLUTION PROSECUTIONS.

THE Mersey and Irwell Joint Committee are making active efforts to bring those who pollute the tributaries of these rivers to a sense of their responsibilities. At last week's sitting of the Bolton County Justices several cases were dealt with. Mr. Sutton, of Manchester, who appeared for the Committee, stated that terms had been arranged with the Little Lever Local Board to accept a nominal penalty of £2. and £5. as costs, with the proviso that the works for sewage disposal which were now in hand should be carried out in nine months. Charges were preferred against Messrs. Nathan Ramsden and Co., bleachers, of Ainsworth Mills, Brightmet, of causing sewage to fall into Blackshaw Brook. The Committee, Mr. Sutton stated, considered that Messrs. Ramsden had been guilty of a very serious offence, and had not shown any inclination to carry out the obligations imposed by the Legislature. There were three cases against the firm, one at Brightmet and two at Harwood, and in the former a penalty of £5. and costs was imposed, and in the others, 10s. and costs each. Messrs. Wilkinson Bros., paper manufacturers, Little Lever, also charged with polluting Blackshaw Brook, were fined £10. and costs, and served with an order to construct works to do away with the pollution. The defendants said that they had spent £400. already in endeavouring to turn out the water clean. At the Borough Court, Messrs. Blair and Sumner, Mill Hill Bleachworks, were summoned for polluting the River Tong. It was admitted by the prosecution that the defendants were carrying out works for the prevention of the offence, and a penalty of £1. 1s. and costs was imposed.

Trade Notes.

A TOILET SOAP.—A patent toilet soap can be prepared by adding suitable quantities of a saturated solution of boracic acid and the yolks of eggs to a quantity of the dried shavings of curd soap, and thoroughly milling the mixture. The resulting mass may be made up into cakes in the ordinary way.

THE U.S.A. TARIFF BILL.—Last Monday this Bill, to which we referred a month or so since in our editorial columns, passed the House of Representatives by a majority of 77 votes. It proposes to reduce the *ad valorem* duties on tin plates from 78% to 42%. The duty on glass will be reduced, and manufactures of glass reduced from 60% to 35%.

THE GATES IRON WORKS EXTEND.—The Gates Iron Works, Chicago, the makers of the well-known Gates Rock Breaker, are at work on plans of an iron foundry to be added to their works in the near future. The equipment will be of the most approved design. The foundry will be erected at the North Side Works, to which it is the intention, eventually, to move the entire plant.

A GLASS WORKS CLOSING.—Despite the reduced tariff for glass under the new U.S.A. Tariff Bill, it is notified that the Ravenhead Glassworks, St. Helens, belonging to the London and Manchester Plate Glass Company, will be closed in seven days. About 500 hands will thus be thrown out of employment. It is stated that the firm has been losing at the rate of £1,500 a week for some time past.

BLIGHT OR HOP POWDER.—The Board of Customs have approved of the following formula for the manufacture of blight or hop powder in approved premises, viz. :—

Tobacco, finely powdered	75 parts
Sulphur	28 "
Asafoetida	5 "
Sago flour	3 "

in lieu of the formula shown in paragraph 465 of the code and general order of 1892.

ARTIFICIAL COFFEE.—Tons of artificial coffee are being made and sold for the purpose of mixing with and adulterating coffee. The grains are stamped out, coloured, and roasted, so as to look exactly like the genuine article, and would, if mixed with genuine coffee, easily deceive an unskilled eye. The fact that the colour of the artificial does not usually match that of the fresh roasted is one of the methods of detection, and if the fraudulent grain is bitten into its hardness will expose the fraud. Some of the artificial coffee is made to imitate the raw coffee grains, and may also be found in it as an adulterant.

WHERE ELECTRICITY WINS.—An electric company has been registered in Sevilla under the title of the Sociedad Sevillana de Electricidad, with a capital of two million pesetas, in 4,000 shares of 500 pesetas each—say, in sterling, £80,000, in £20. shares. The company propose to commence the laying of cables at the end of September or beginning of October, and it is expected that such progress will be made with the installation that it will be possible to give the electric light at the end of May. Owing to the high price of gas it is estimated that the electric light, which will be supplied by meter, will not cost the consumer more than he pays at present for gas.

THE WAY IT'S DONE.—At the recent Birmingham Assizes, a tradesman was charged with feloniously transposing and removing a certain mark from brooches of nine-carat gold to brooches of base metal. As a matter of fact, the offence was not quite so serious as might be inferred from the charge. What the defendant did was this. He had strips of nine-carat gold stamped, and used these to make brooches the backs of which were of six-carat gold. The law in England is sufficiently accommodating in allowing nine-carat gold, which means a composition of nine parts gold to fifteen parts of base metal, to figure as gold, but it draws the line at anything below that in value. However, the defendant was merely bound over. The result to the purchaser is equally objectionable whether the offence is legally trivial or serious.

SERIOUS ACCIDENT WITH A LOAD OF VITRIOL.—An accident of an unusual character occurred in Paris on Sunday last. A carman was driving a dray drawn by two horses and loaded with carboys containing sulphuric acid. In the Rue du Moulin, which is excessively steep, he forgot to put on the drag, and the ponderous vehicle soon acquired a velocity which the horses were unable to withstand. One horse fell, and the dray collided with the kerbstone, and finally plunged into an enclosure belonging to the Eastern Railway Company, making a great breach in the fence. With the violence of the shock the carboys were precipitated to the ground, and in their fall were broken. The corrosive fluid inundated the driver and the wretched animals. The man was terribly burned about the face and hands, and his condition is serious. As to the horses, they were led to the river Mame suffering tortures. One of them which was in the shafts died upon entering the water, and the other had to be slaughtered.

THE DUTY ON ALCOHOL FOR THE ARTS.—A telegram from Philadelphia states that on Thursday a Bill was introduced in the House of Representatives removing from the free list alcohol used in arts and medicines.

FREE LIST ITEMS IN THE NEW U.S.A. TARIFF BILL.—Barytes carbonate and sulphate are in the free list under the new proposed Tariff Bill for the U.S.A. So are also the following :—Crude and sublimed iodine; Epsom salts; salt in bulk, bags, sacks, or barrels (the coverings, however, to pay duty); tallow and wool grease; ochres and siennas.

BRUNNER MOND'S DIVIDEND.—Including £81,929, brought forward, the nett profit for the half-year to June 30 is £232,644. Dividends at the rate of 7 per cent. per annum on the preference shares and at the rate of 30 per cent. per annum on the ordinary shares are recommended, payable on the 24th inst. The directors propose to write £2,500, off the patents account, and to carry forward £90,092.

ARTIFICIAL CITRIC ACID.—According to a patented process artificial citric acid may be made by acting on solutions of sugar, starch, glycerol, and analogous substances with two new species of hyphomycetes, called *citronycetes*. These fungi are obtained by allowing sugar solution containing two to five per cent. of citric acid to stand a few days, then removing the fungi produced, and cultivating them in sterilized sugar solution. The pure culture is introduced into sugar solution containing a small quantity of mineral salts, and the liquid is allowed to stand at the ordinary temperature for 8 to 14 days. On evaporation, the citric acid separates; or it may be obtained as lime salt by adding lime or carbonate of lime to the solution after or before the fermentation.

THE RIBBLE JOINT COMMITTEE.—A meeting of this Committee was held on Monday at the County Hall, Preston, Mr. T. Lightbown (Darwen) presiding. A further adjournment of two months was made in the case of Padiham Local Board, who on the 12th July received sanction from the Local Government Board to borrow £15,625. for sewerage purposes. Horwich Local Board were allowed a further two months, and Burnley R.S.A. were ordered to submit plan work to be commenced within three months. Ince Local Board were ordered to improve their effluent or proceedings would be taken, and Nelson Local Board were similarly dealt with. The Clerk was instructed to apply to the Local Government Board for permission to prosecute several manufacturers, who, however, will be allowed time before proceedings are taken.

SELF-STAMPED POST CARDS ADMISSIBLE.—Mr. J. H. Heaton, writing to the *Times*, says :—"After a seven years' struggle with the Post Office, I have the pleasure of announcing a substantial success for the public. Henceforth a person may take any plain card of the proper size, write a letter upon it, affix a halfpenny adhesive stamp, and have it transmitted through the post. The Department has, I admit, made a gallant fight. The officials paid £283. per million for the material of their postcards, whereas the adhesive halfpenny stamps only cost them £16. per million. Nevertheless, by charging 6d. for ten cards, and selling single cards at 3d. each, they have contrived to make a clear profit, on the material alone, of £22,000 a year. To safeguard this profit they even raised the cost of stamping (impressing) stationers' sheets of postcards from 9s. a gross to 15s. a gross (the actual cost being about 1s. per gross). This abuse of a letter-carrying monopoly, in order to injure trade, justifies my reiterated contention that the Post Office has no legal or moral right to enforce a profit from the sale of stationery." It is still illegal, however, to paste a typed address on a post card, or affix a press cutting to the back instead of copying it out.

PEAT AS A FUEL.—The following figures, indicating the relative powers possessed by various kinds of fuel for converting water into steam (kinetic power) will render it possible to institute a comparison between peat and other fuels : one kilogramme of wood converts into steam 3.4 kilogrammes of water; one kilogramme of brown coal, 3.5 to 4.9 kilogrammes of water; one kilogramme of cut peat, 2.8 to 4 kilogrammes of water; one kilogramme of machine peat, 4.5 to 5 kilogrammes of water; one kilogramme of hard coal, 7 to 8 kilogrammes of water; one kilogramme of medium coal, 6 to 7 kilogrammes of water; one kilogramme of poor coal, 4 to 6 kilogrammes of water. It is reasonable to estimate, on an average, that 100 pounds of peat are equal, in respect to the really available heating capacity, to 50 to 60 pounds of hard coal. In the peat works at Haspelmoor, which are known to be a paying enterprise, the total cost of producing 100 pounds of air-dried peat amounted last year to 36 pfennigs, which low figure was secured, however, mainly by reason of the comparatively low rate of wages and the inexpensive manner of living prevailing in that neighbourhood. In Germany one hundred kilogrammes of good Zwickau hard coal cost at the mine 1.20 to 1.62 mark, while the cost of production of the same quantity of peat amounts to from 0.30 mark to 1.40 mark, according to quality.

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ANSWERS TO CORRESPONDENTS.

- J. S.—We only want to get on with the other part at present.
 T. Y.—We will write you particulars. Thanks for your enclosure.
 E. F. (Anvers).—By letter.
 X.—It looks much more promising than the last discovery of the same nature. Your complaint is to us the source from whence we draw our hopeful conclusions.
 H. AND C.—We did so. A little longer notice when there are to be two in one day is always desirable.
 NIGRUM.—We shall be dealing with the subject in an article shortly. Till then the matter must stand in abeyance.

THE FAILSWORTH SEWAGE WORKS.

ON Wednesday the first sod of these sewage disposal works was cut by the chairman of the Local Board. The works are situate at Green-lane, Clayton Bridge. The main concentrating sewers are being constructed, and when these, together with the tributary drains, are completed, the sewage will be completely diverted from the various watercourses, including the River Medlock and Moston Brook, and further contamination effectually prevented. The sewage works are being executed by Messrs. Lomax and Lomax, Manchester. In outlining the scheme, Mr. C. J. Lomax said the Board had decided to adopt the "International" process at the outfall works, under which the solids would be precipitated in tanks and the liquid filtered through polarite beds before being turned on the land and subsequently finding its way into the Medlock, on the banks of which stream the works were situated. The purification works would consist of two detritus tanks and three precipitating tanks, each capable of holding 225,000 gallons. The sewage would enter the works at a level of 12ft. above the tanks, and the "head" would be utilised for the working of a water-wheel, which would be laid down to do all the necessary mixing of chemicals, in addition to elevating the sludge. The clarified sewage would pass from the tanks on to six polarite filters, so constructed that the filtered water from any one of them could be made to cleanse the surface of the others. The area of these filter beds was extensive, it being the intention to deal with a large volume of storm water. The cost of the outfall works was estimated at £8,700., the contract having been let for that amount to Messrs. George Freeman and Sons, of Hollinwood. The cost of the whole scheme was estimated at £28,000.—Mr. George Whitehead (the chairman of the Sewage Disposal Committee) said they had met upon a very important occasion. The idea of constructing these works had been in their minds for a considerable time, but for various reasons the progress had been hindered. They could, however, reflect that great work was done slowly, and if it was slow and sure so much the better. They could not yet quite see the end, but they had every reason to believe they were within measurable distance of having the scheme completed.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of
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From

MR. JOHN HEYWOOD,

2, Amen Corner,

On usual trade terms.

Paternoster Row, E.C.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

REMARKABLE ACTION BY IRONWORKERS.—A remarkable attempt to prevent the closing of an ironworks is now being made by the workmen of the New British Iron Company, Limited, Congreaves, Staffordshire, the said works having been put up for sale recently without finding a purchaser (*C. T. J.* 372 p. 3). A scheme has been initiated by the operatives for raising sufficient capital to carry on the works by means of subscriptions from the local tradesmen and the workmen and managers themselves. Something like £100,000. is necessary to purchase the works, and the workmen alone propose to contribute £16,000. An active canvass of the district is now being made, and the result is eagerly awaited.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending August 4th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'43	9'21	0'5	Nil.
South Metropolitan Gas Co.	6	16'75	0'98	0'66	Nil.
Commercial Gas Co.	2	16'6	8'45	0'4	Nil.

The supply for week ending August 11th was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'36	8'73	0'45	Nil.
South Metropolitan Gas Co.	6	16'58	9'4	0'6	Nil.
Commercial Gas Co.	2	16'45	8'85	0'45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cb. ft. of gas on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Market Reports.

TAR AND AMMONIA PRODUCTS.

With the exception of an increased firmness in pitch, there is no material change in tar products. Benzol is a shade easier at 11d. for 90's. Carbolic acid is very quiet, and though 60% crude remains unaltered in price, 40% crystals are a fraction lower at 5½d. Crude and solvent naphtha remain stationary at 5d. and 1s. 3d. The firmness of pitch, however, has been markedly accentuated, 33s. 6d. to 34s., f.o.b. East Coast, now being obtainable.

Sulphate of ammonia is very quiet. The quantity of sulphate available is small, so that even an ordinary demand would have a hardening effect on prices. In consequence consumers are holding off till the last moment. Quotations are variable, as there is hardly enough business doing to really test prices. Nearest values may be taken as:—Beckton £13. 15s., London outside makes £13. 15s., Liverpool £13. 12s. 6d. to £13. 15s., Hull £13. 12s. 6d. to £13. 13s. 9d., Leith £13. 10s. to £13. 12s. 6d.

REPORT ON MANURE MATERIAL.

During the week the market has been on the whole rather quiet, but prices remain steady. Florida rock, 75/80%, is held for 8½d. per unit, c.i.f. to the Baltic; 8d. per unit c.i.f. to Continental ports, and 7¾d. per unit to United Kingdom. South Carolina River rock is quoted 6½d. per unit, but this price is not obtainable for anything like early shipment. Peace River rock remains scarce, and the nominal value is 6¾d. per unit. There is nothing to report in River Plate bones: the value of handy cargoes is £4. 12s. 6d. per ton, but for those of large size, something less would probably have to be taken. Bombay bone meal is offering less freely, but £4. 12s. 6d. would probably still be business for a moderate quantity. There have been sales of crushed Kurrachee bones at £4. 12s. 6d. per ton, autumn shipment. Common grinding bones find a ready sale at Liverpool at £4. 5s. to £4. 7s. 6d. per ton, according to quality and condition. The position of nitrate of soda is firm, but there is not very much business passing: on spot 9s. is now required for fine quality, and 8s. 10½d. for ordinary quality. Due and port of call cargoes are worth about 8s. 10½d. per cwt.; July-August shipments about 9s., and later shipments 9s. 1½d. to 9s. 3d. per cwt., according to size and test.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is in good demand, and firm in price. Considerable sales have been made in Bonny and Accra at £20. 10s and £20. 5s.; Lagos is offering at £22., all transit. Olive is steady, without change in price; the business doing, however, is limited. Linseed is steadily held for 21s. 9d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed is firmer, and now offering at 21s. to 21s. 3d. per cwt. for Liverpool refined. Castor oil is without change in price: quotations for good seconds Calcutta and first pressure French being the same as last week. There is a fairly good demand for tallow, which is steady, with North American at 23s. to 24s. per cwt. Rosin is moving pretty freely, but there is a tendency to weakness in prices for all grades. Spirits of turpentine have for the time being become stationary, 22s. 3d. per cwt. still being current quotation. Petroleum is steady at 4d. to 5¼d. for American, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead and red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a fairly good demand for export; prices remain steady, both in caustic soda and bleaching powder, for spot and forward deliveries. Quotations are:—bleaching powder, softwoods, £7. 10s. nett, f.o.b., and hardwoods, £8. f.o.b. Caustic soda, 77%, f.o.b. Tyne, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d. per ton, 10-ton lots and upwards. Alkali, 58%, and Leblanc ash is rather neglected, and there is no improvement in value: buyers are showing a disposition to cover requirements over 1895, and some business has been done for that period. Chlorate of potash and soda still inclined to droop: spot prices are nominally as last week, viz.: 6½d. and 8d. per lb. respectively. Sulphur £3 15s., makers' works. Bicarbonate soda and soda crystals are unchanged. Saltcake still nominally 17s. 6d. to 20s. Nitrate of soda steady at 8s. 10½d. For sulphate of copper there is less demand, and price is quoted at £14. to £14. 5s. per ton, f.o.b. Sulphate of iron and iron salts generally are receiving more attention. Trade continues disappointing in carbolic acid, both in crude and refined qualities. Potash, caustic and carbonate, are in fairly good request, and the market is firm. Brown and grey acetates of lime quiet on the spot, but with a firm tendency at £6. for brown, and £9. 15s. to £10. for grey. Sugar of lead dull. Acetate of soda is slightly lower at £14. 5s. to £14. 10s. per ton. White powdered arsenic in better demand at £13. 15s. to £14., f.o.b. Garston. In ammonia salts values are well maintained: muriate £24. to £25., and carbonate 3¼d. per lb. There is no change in the position of aniline salt and oil, and generally chemicals for textile manufacturing, dyeing and printing, are at a discount.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, firm: Scotch warrants closed at 42s. 7½d., Middlesbrough 35s. 7½d. cash, and hematite 44s. 3d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £39. 11s. 3d. to £39. 15s. cash, and £39. 18s. 9d. to £40. 2s. 6d. three months. Tin, easier: Straits closed at £69. 5s. to £69. 15s. cash, and £69. 15s. to £70. 5s. three months; Australian, £69. 15s.; English ingots, £71. to £71. 10s. Lead, firm: Spanish, £9. 16s. 3d.; English, £9. 17s. 6d. Silesian Spelter, ordinary, £15. 7s. 6d. Nickel, 1s. 5d. to 1s. 7d. Antimony, £32. Quicksilver: first hands, £6.; second hands, £5. 19s. Copper shares, strong: Cape, 1¼ to 1½; Copiapo, 1½ to 1½; Libiola, 3¼ to 3½; Mason and Barry, 2½ to 2½; Rio Tinto, 14½ to 14½; Tharsis, 4½ to 4¾.

GLASGOW, WEDNESDAY.—Market buoyant, with good business. Scotch done at 42s. 6d. and 42s. 8d. cash, also at 42s. 8d. and 42s. 10½d. one month; closing with buyers at 42s. 7½d. cash, sellers ask 42s. 8d. Cleveland closes with buyers at 35s. 7½d. cash, sellers ask 35s. 9d. Cumberland hematite done at 44s. 3d. cash, also at 44s. 5½d. one month; closing with buyers at 44s. 3d. cash, sellers ask 44s. 4½d. Middlesbrough hematite closes with buyers at 42s. 9d. cash, sellers ask 43s.

WOLVERHAMPTON, WEDNESDAY.—The tone of the market to-day is improved, consequent upon the American tariff revision and the better reports from Glasgow and Middlesbrough. A fair business done, with sellers inclined to ask higher rates. Marked bars are quoted £7. 10s.; merchant sections £6. 10s., and common bars £5. 10s.; galvanized sheets £9. 12s. 6d. for doubles, and galvanizing doubles £6. 10s. Hoops and thin strip £6. 10s., and gas tube strip £5. 15s. Pig iron steady, with quotations unaltered. Steel in good request, and fair prices were realised.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The slight increase in the demand for general chemicals caused by the stoppage for the holidays has already spent itself, and business is once more back to its normal flatness. Prices are nominally unchanged. Continuance of the mining strike and consequent interruption to several manufactures in which chemicals are employed tend to further attenuate an already much enfeebled trade.

Paraffins and the heavier grades of mineral oil are without change as to prices, these having been long about as low down as the profit and loss calculation will permit, but business in burning oils has continued to be pretty active, following on the farthing reduction recorded last week. This business is all of a time character; for the most part covering the whole of next winter's consumption, as calculated on by the buyers concerned, and one or two of the makers are said to have contracted up very nearly to the entire limit of their production.

Sulphate of ammonia still droops under the very poor inquiry experienced, and prompt Leith is now down to £13. 10s. to £13. 12s. 6d.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 17s. 6d., 60/62° £7. 17s. 6d.; and cream 60/62° £7. 15s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £13. 10s. to £13. 12s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 10s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were nil.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue fairly steady, and shipments have lately been quite up to the average. Soda crystals, £2. 1s. per ton, gross weight. Bleach, £7. 5s. per ton. Sulphur, £3. 17s. 6d. to £4. Other products unaltered.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett; soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 10s. 6d. per ton, f.o.b. Tees.

COALS.—There is more activity in the coal trade, more especially with regard to steam coals. Shipments are being made in considerable quantities to Scotland. Shipments to Russian ports are at present very heavy. Best Northumbrian steam firm at 11s. per ton; second quality, 9s. 6d. to 10s. per ton; small steam, 4s. 9d. to 5s. per ton; gas coal steady at 7s. 3d. to 7s. 9d. per ton; bunker coals, unscreened, 7s. per ton; coke steady, 13s. 6d. to 15s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Oils during the week have continued to improve in value, but at the moment of writing the positions are not so firm. The import of linseed during the week has been 2,465 qrs., viz., 2,300 qrs. from St. Petersburg, and 165 qrs. from Catania; of cottonseed there have been no imports from Alexandria during the week, but there have been arrivals of 1,323 tons from Pernambuco and 625 tons from Mersyne. There are no imports of rapeseed during the week. Linseed oil has been firm, and spot closes steady at 19s. 9d. naked; month, 19s. 7½d.; and September-December or January-April, 18s. 7½d. to 18s. 9d.; boiled and refined from £1. to £2 per ton extra, and ordinary barrels 22s. 6d. per ton extra. Export for the week, 1,050 cwt. Refined cotton oil has improved about 7s. 6d. per ton on the spot, closing quiet at 19s. naked. At this price there are also sellers for August-October; November-April, 17s. 7½d. to 17s. 9d.; crude on the spot, 17s. naked. Export of refined, 1,060 cwt. Rape and olive remain unchanged and cheap. Castor oil for first pressure 2¼d. to 2½d. per lb. Spirits of turpentine, 23s., in barrels. Cod oil quiet, from £17. to £20. per ton. Sod oil for tanners, curriers, etc., in better demand, from £16. to £21. per ton. Sperm oil from £26. per ton. Soft soap, 14s. 6d. per cwt. Rosin oil, £6. 10s. per ton. Open flame lamp oil from 1s. 4d. per gallon. Petroleum jelly from £20. per ton.

CAKES.—Linseed cakes not much in demand, and prices firm: 95% pure, £6. 10s. to £6. 12s. 6d.; Russians, £6. 10s.; oil cakes, £5. 10s. Cotton cakes: Demand small, and prices steady. Best makes, £4. 2s. 6d.; seconds, £3. 17s. 6d. per ton. Rape and feeding cakes unchanged.

PAINTS.—Some makers speak with satisfaction of the season, others say their output has not been equal to a year ago. Prices are: Oxide of iron, dry, from £7. Venetian red, dry, from £4. Blue black, £4. 5s. Mineral black, £4. Yellow ochre, dry, from £3. 15s. Red lead, £13. per ton. White lead and oxide of zinc unchanged. Ultramarines from 3d. to 8d. per lb. Ready mixed paints, £24. per ton in lever tins. Black varnish, £5. per ton, barrels.

New Companies.

Paper Drying Company, Limited.—CAPITAL £2,000. in shares of £1. each. This company has been formed to manufacture paper and to dry paper used in the manufacture of dinitro-cellulose.

Rhea Fibre Co., Ltd.—CAPITAL £130,000., in shares of £1 each. An agreement has been made between Messrs. Hutchinson and Co., A. F. B. Gomes, and this Company to acquire, develop, and turn to account certain patents, and to carry on business as spinners, manufacturers, and dyers of fibre.

Charles Sharp and Company, Limited.—CAPITAL £100,000. in £10. shares. This company has been formed to acquire and carry on the business of manure merchant and seed grower, now being carried on by Chas. Sharpe and Co. The subscribers to the memorandum of association are:—Charles Sharpe, Sleaford, seed merchant; A. Levertton Jessop, Sleaford, solicitor; J. C. Gould, Sleaford, manager; J. Seymour, Sleaford, shopman; Laura Jessop, Sleaford, married woman; E. Sharpe, Sleaford, married woman; A. Sharpe, Sleaford, spinster.

Arreekite Steel Company, Limited.—CAPITAL £60,000. in shares of £10. each. This company has been formed to purchase any patents or inventions applicable to the hardening of metals. The subscribers to the memorandum of association are:—A. Arathoon, 12, Park-place, S.W., barrister-at-law; A. W. Jackson, 28, Foystone-road, South Kensington, no occupation; H. W. Gabbett-Fairfax, C.E., Windsor Hotel, Glasgow; W. H. Burn, 3, Victoria-street, S.W., gent; W. A. C. Smith, 6, Charlwood-place, Plimlico, clerk; M. Lachman, 4, Portman Mansions, S.W., no occupation; E. C. Gibson, The Cottage, Bognor, gent.

British Castor Co., Limited.—CAPITAL £3,000., in shares of £250. each. This Company has been formed to purchase, prepare, manufacture, and deal in castor and other oleaginous seeds, to deal in the bye-products obtained in the manufacture of oil; generally, to carry on business as oil manufacturers and merchants, manure merchants, chemical manufacturers, etc.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Preserving Wood. E. Grolbe. 14,599. July 30.
Manufacture of Aluminium. E. Tarin. 14,649. July 31.
Improvements in Centrifugal Blowers. W. H. Harrison. 14,678. July 31.
Disintegrating and Scouring, etc., Mineral Pulp. W. W. Fyfe. 14,705. July 31.
Sewage Treatment. H. L. Sulman. 14,760. August 1.
Improved Furnace for the Manufacture of Oxygen. C. T. Cayley. 14,761. August 1.
Improvements in Acid Fume Condensers. H. L. Doulton and L. E. Sanceau. 14,766. August 1.
Improvements in Filling Acid Purification Towers, etc. H. L. Doulton and L. E. Sanceau. 14,767. August 1.
Apparatus for Manufacturing Sulphuric Acid by aid of an Electric Current. R. W. Hill. 14,769. August 1.
Automatic Apparatus to be used in Making Sulphuric and other Acids. R. W. Hill. 14,770. August 1.
Removing or Preventing Incrustations in Steam Boilers. G. P. Gardner. 14,790. August 2.
New Substance for Tanning or Dyeing. Brooke, Simpson, and Spiller, Ltd., and R. J. Friswell. 14,820. August 2.
Apparatus for Treating Substances Containing Fats and Oils. W. O. Robbins. 14,821. August 2.
Making Cement from Schist and Bituminous Marl. L. Mack. 14,846. August 2.
Extracting Sulphur from Raw Pyrites, or its Residuum, and Recovering the Bye-products. A. Buisine. 14,856. August 2.
Purifying Saccharine Juices by Electrolysis. J. Y. Johnson. 14,858. August 2.
Removing Sludge from Sewage Precipitation Tanks and Improvements in Filter Beds. F. P. Candy. 14,868. August 3.
Improved Manufacture of Soda Crystals or Washing Soda. C. P. Peak, J. Peak, H. Peak, and A. G. Haddock. 14,894. August 3.
Manufacturing Neutral Sodium Carbonate, Sodium Sulphite, and Sodium Borates from Sodium Chloride. E. Dresel and J. Lenhoff. 14,905. August 3.
Manufacture of Articles Impregnated with Celluloid and Recovering Solvents from Celluloid and Similar Varnishes. A. Gray. 14,923. August 3.
Artificial Stone. A. Muirhead and G. Hackford. 14,934. August 3.
Improvements in Soap, Oil, Greases, and Mineral Oils. S. Rosenblum and F. L. Bartelt. 14,946. August 4.
Apparatus for Obtaining Cyanides. J. S. M'Arthur. 14,954. August 4.
Manufacture of Bicarbonate of Soda. W. L. Wise. 14,985. August 4.
Manufacture of Bleaching Powder and other Hypochlorites. W. L. Wise. 14,986. August 4.
Separating Caustic Alkalies from the Liquors Obtained from the Electrolysis of Alkaline Salts. W. L. Wise. 14,987. August 4.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

G. WOODS, J. PROCTOR, and J. GOODIER, wholesale druggists and drysalers, Preston, under the style of Woods, Proctor, and Goodier.
J. T. C. BLACKIE and S. N. WILLIAMS, soap manufacturers and drysalers, Chorlton-upon-Medlock, Manchester, under the style of Brown & Co.
T. SOUTHERN and W. H. SOUTHERN, manufacturing chemists, Salford, under the style of Thos. and Wm. Southern.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

SOUTHAM, DAVID, Luton, bleacher and dyer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 4th.

Acetic Acid—
Holland, 5 pkgs. Beresford & Co.
" 265 A. & M. Zimmermann
" 70 F. J. Putz & Co.
Alkali—
Germany, 22 pkgs. L. & I. D. Jt. Co.

Alum—
Belgium, 24 pkgs. R. W. Greeff & Co.
Ammonium Chloride—
Holland, 10 pkgs. H. Lorenz
" 3 F. Boehm
Amyl Acetate—
Germany, 5 pkgs. F. Stahl Schmidt & Co.

Aniline—
Germany, 1 pkge. G. J. McCaul & Co.
Antimony Ore—
Straits, 186 t. Pillow, Jones & Co.
Sweden, 1 Trummer & Co.
Sydney, 14 H. Bath & Son
" 57 Vivian, Younger & Co.

Arsenic—
Germany, 20 pkgs. Brandram Brs. & Co.
Asbestos—
Italy, £150 Brit. Asbestos Co.
Barytes—
Holland, 59 cks. Phillips & Graves
" 46 O'Hara & Hoar

Holland, 47 Taylor & Co.
 Germany, 56 Magee, Taylor & Co.
 Germany, 110 W. Harrison & Co.
 Belgium, 301 pkgs. A. Zumbek & Co.
 " Leach & Co.

Butyrate of Soda—
 Germany, 1 pkgs. Spies Bros. & Co.

Camphor—
 Germany, 1 cs. L. & I. D. Jt. Co.
 Hong Kong, 100 pkgs. City Coml. Wf. Ld.

Caoutchouc—
 E. Indies, 100 c. Ross & Deering
 " 48 Kleinwort, Son & Co.
 " 499 L. & I. D. Jt. Co.
 Zanzibar, 1 " "
 Rangoon, 550 " "
 " 18 Arracan Co., Ld.
 U. States, 25 Prop. Bull Wf.
 N. Russia, 170 Ross & Deering

Carbonic Acid Gas—
 Holland, 30 tubes. F. J. Putz & Co.

Castor Oil—
 E. Indies, 66 cks. Ross & Deering
 " 50 Cayzer, Irvine & Co.
 " 77 cs. Anderson, Weber & Smith
 " 10 H. A. Litchfield & Co.
 Italy, 125 L. Laumont
 " 20 City Coml. Wf. Ld.
 " 30 Lucas & Spencer's Wf. Ld.
 " 5 W. G. Frith & Co.
 France, 18 brls. L. & I. D. Jt. Co.
 " 58 Fuerst Bros.
 Belgium, 69 " "
 " 56 A. Brown & Co.

Caustic Potash—
 Belgium, 50 c. Petri Bros.
 France, 4 cks. Spies Bros. & Co.

Chemicals (otherwise undes.)—
 France, 1 cs. H. Johnson & Sons
 Belgium, 2 pkgs. T. H. Lee
 Germany, 67 36 " "
 " 113 A. & M. Zimmermann
 " 12 Boyce Bros.
 Cape, 10 Dreyfus & Co.
 U. S., 10 C. J. Capes & Co.

" 28 pkgs. A. P. Morris
 France, 1 Mory & Co.
 " 7 Hernu, Peron & Co.
 " 2 Grose & Co.

Cobalt Ore—
 Sydney, 8,104 bgs. Houlder Bros. & Co.

Cream of Tartar—
 France, 14 pkgs. B. & F. Wf. Co.
 " 10 W. C. Bacon & Co.
 " 4 F. C. Devon & Co.
 " 3 G. Ward & Sons
 Italy, 9 Fellows, Morton & Co., Ld.

Dyestuffs—
Argols
 Spain, 552 pkgs. B. Jacob & Sons
 Italy, 30 Thames S. T. & L. Co., Ltd.

Cutch
 E. Indies, 1,106 pkgs. Ross & Deering
 Rangoon, 30 L. & I. D. Jt. Co.
 " 400 Arracan Co., Ltd.
 " 500 J. & G. Bullock & Co.

Divi Divi
 E. Indies, 70 pkgs. E. H. Couzens & Co.
 " 358 Culverwell, Brooks & Co.

Extracts
 Belgium, 80 pkgs. Leach & Co.
 U. States, 1 H. Herrmann
 Natal, 575 Boucher, Mortimore & Co.
 France, 12 pkgs. Union L. Co.
 " 60 Prop. Chmbln's Wf.

Feutic
 Trinidad, 6 t. Low, Son & Co.

Gambler
 E. Indies, 430 pkgs. J. Greig
 " 173 Beresford & Co.
 " 472 R. & J. Henderson
 " 441 S. Figgis & Co.
 " 222 A. Hagan

Indigo
 E. Indies, 371 chts. R. von Glehn & Sons

" 6 Eales & Rutherford
 " 70 L. & I. D. Jt. Co.
 " 24 Arbutnot, Latham & Co.

" 7 J. J. Milne & Son
 " 4 Croysdale & Co.
 " 13 Park, Macfadyen & Co.
 " 29 G. N. Rly. Co.

Madder
 France, 1 pkgs. L. & I. D. Jt. Co.

Myrabolams
 E. Indies, 6,724 pkgs. W. Shelcott
Safflower
 E. Indies, 11 pkgs. Henckell du Buisson & Co.

Tanners' Bark
 Adelaide, 102 t. Beresford & Co.
 " 64 Dyster, Nalder & Co.
 Natal, 45 Boucher, Mortimore & Co.
 " 25 A. & W. Nesbitt
 " 43 Flack Chandler & Co.
 Melbourne, 77 Dyster, Nalder & Co.
 France, 4 Beresford & Co.
 U. States, 13 " "

Turmeric
 E. Indies, 200 pkgs. J. Owen
 " 197 Hoare, Wilson & Co.
 " 100 R. G. Hall & Co.
 " 36 H. A. Litchfield & Co.

Valonia
 A. Turkey, 90 t. A. & W. Nesbitt

French Chalk—
 Italy, 130 W. Harrison & Co.

Glucose—
 Germany, 13 pkgs. 104 c. M. D. Co.
 " 225 225 c. Ohlenschlager
 France, 520 665 Mead, Son, & Co.

" 100 100 L. Norman & Co. Ltd.
 " 210 210 J. Barber & Co.
 " 220 200 Barrett, Tagant, & Co.

U. States, 1,000 1,000 R. G. Hall & Co.
 " 1,000 1,000 " "
 " 932 932 L. Suto & Co.
 " 1,000 1,000 Pearce, Pelley, & Co.

" 100 564 Ohlenschlager Bros.
 " 50 203 Page, Son, & East

" 2,434 6,567 T. M. Duché & Sons
 " 125 750 L. & I. D. Jt. Co.
 " 150 847 Crose & Blackwell

Lead Acetate—
 Germany, 14 pkgs. Beresford & Co.

Manure—
 E. Indies, 450 t. A. Hunter & Co.
 N. Zealand, 20 Dalgety & Co., Ltd.
 N. Russia, 18 Williams, Torrey, & Co.
 France, 5 J. Burnett & Sons

Ochre—
 France, 11 cs. O'Hara & Hoar
 " 23 brls. Robinson & Co.
 " 86 W. Harrison & Co.
 Holland, 9 pkgs. Philipps & Graves

Paraffin Wax—
 U. States, 950 brls. Anglo-American Oil Co.

Phosphate Rock—
 " 320 t. London Phosphate Syndicate Ltd.
 Holland, 235 Anglo Contl. G. Wks.
 France, 110 A. Hunter & Co.
 " 310 Lawes Manure Co.
 U. States, 7,550 A. Hunter & Co.
 W. Indies, 410 G. M. Bauer

Pitch—
 France, 23 brls. Poth, Hille, & Co.
 Sydney, 36 cks. J. Greig
 N. Russia, 500 R. Brandt & Co.
 " 400 brls. Fellows, Morton, & Co.

Plumbago—
 Ceylon, 204 brls. 18 cks. R. G. Hall & Co.
 " 70 Doultson & Co.
 " 40 Beresford & Co.
 " 105 L. & I. D. Jt. Co.
 " 325 J. Thredder, Son, & Co.
 Germany, 80 cs. Prop. Scott's Wf.
 " 8 cks. Acton & Borman
 " 22 cs. T. H. Lee

Potash—
 Canada, 196 c. Charles & Fox

Potassium Bicarbonate—
 Holland, 2 c. A. & M. Zimmermann

Potassium Carbonate—
 Germany, 40 c. H. Johnson & Sons
 " 2 cks. Beresford & Co.
 France, 300 Charles & Fox

Potassium Permanganate—
 Holland, 30 pkgs. J. Barber & Co.

Potassium Sulphate—
 France, 31 pkgs. Mead, Son, & Co.

Pumice Stone—
 Italy, 1 t. B. Gallaway

Pyrites—
 Spain, 1,003 t. C. Tennant, Sons, & Co.
 " 1,229 Naylor, Benzon, & Co.
 " 950 C. L. Vasey & Co.

Quicksilver—
 Spain, 102 brls. L. & I. D. Jt. Co.
 Italy, 500 " "
 " 100 flks. H. Bath & Son

Rosin—
 Belgium, 100 brls. Pillow, Jones, & Co.

Saltpetre—
 Germany, 40 cks. J. Hall & Son
 " 56 P. Hecker & Co.
 E. Indies, 1,966 bgs. Lucas & Spencer's Wf. Ltd.

" 623 Ralli Bros.
 " 1,528 Perkins & Homer

Soapstone—
 U. States, 692 Loco Packing Co.

Sodium Acetate—
 France, 29 pkgs. S. F. Waters & Co.

Sodium Nitrate—
 Holland, 8 pkgs. Philipps & Graves

Starch—
 Holland, 741 pkgs. Little & Johnston
 " 40 G. Rahn & Co.
 " 188 Philipps & Graves

Germany, 120 " "
 " 2,310 Horne & Co.
 " 330 Seaward Bros.
 Belgium, 400 F. Rosenthal & Co.
 " 240 Leach & Co.

" 890 Prop. Scott's Wf.
 " 110 F. Claydon & Co.
 " 120 T. H. Jones
 Austria, 100 P. Windmuller & Co.

Stearine—
 France, 210 bgs. Beresford & Co.
 U. States, 70 W. W. Young
 France, 62 Walbaum & Tosetti
 Belgium, 272 H. Hill & Sons

" 26 " "

Sulphur—
 Belgium, 25 t. Soundy & Sons

Tartaric Acid—
 Holland, 3 pkgs. F. C. Devon & Co.
 " 21 Kirkpatrick & Co.
 " 12 B. & F. Wf. Co.

Italy, 32 " "

Turpentine—
 N. Russia, 104 brls. C. B. Leighton

Ultramarine—
 Germany, 32 cks. T. Hamilton
 " 2 H. Lambert
 " 39 pkgs. Steinhoff, Sons, & Co.

Holland, 5 Philipps & Graves
 " 6 cs. Haefner, Hilpert, & Co.

Belgium, 10 2 brls. W. Harrison & Co.
 " 10 Leach & Co.

Yarnish—
 France, 13 pkgs. Flagecollet & Co.

White Lead—
 Holland, 26 cks. Burrell & Co.
 " 19 A. & M. Zimmermann
 Germany, 40 Blundell, Spence, & Co.

" 40 M. Ashby, Ltd.
 " 35 Elkan & Co.
 " 25 Petri Bros.
 " 10 N. J. Fenner & Co.
 Belgium, 134 dms. Randall Bros.

" L. Le Personne & Co.

Wood Pulp—
 Norway, 80 pkgs. W. G. Taylor & Co.

" 1,022 J. Dickinson
 Germany, 2,000 Ekman Paper Co.
 U. States, 31 Tough & Henderson
 " Wingate & Johnson

Zinc Oxide—
 Holland, 200 brls. M. Ashby, Ltd.
 " 100 F. Pryor
 U. States, 100 M. Ashby, Ltd.

" 40 " "
 " 35 N. J. Fenner & Co.
 " 10 Randall Bros.

Belgium, 134 dms. L. Le Personne & Co.

Zinc White—
 Holland, 100 cks. Burrell & Co.

LIVERPOOL.

Week ending August 2nd.

Ammonia—
 New York, 30 cyldrs.

Amorphous Phosphorus—
 Rouen, 15 cs. Co-op. W'sale Society, Ld.

Antimony Ore—
 Antofagasta, 147 bgs.
 Mollendo, 179 Brailard & Co.

Barytes—
 Antwerp, 50 bgs. 23 cks.
 Rotterdam, 33

Boracic Acid—
 Leghorn, 20 cks.

Borate—
 San Francisco, 1,185 sks.

Borax—
 San Francisco, 1,070 sks.

Castor Oil—
 Calcutta, 286 cs. Ralli Bros.
 " 750

Colours—
 Marseilles, 11 cs. 4 cks. C. Collet
 Antwerp, 2 brls. J. T. Fletcher & Co.

" 1 bx.

Cottonseed Oil—
 New York, 12 brls. Matthew Bell

Cream of Tartar—
 Barcelona, 5 pps. 8 cks. 5 hds.
 Tarragona, 5 bts. Sachse & Klemm

Dyestuffs—
Cochineal
 Gd. Ganary, 33 bgs. Roberts & Evans

Divi Divi
 Hamburg, 1 cs.

Extracts
 New York, 40 cs. 59 bss.
 Baltimore, 350 50 brls.
 Bordeaux, 100 R. Falck
 N. Orleans, 250
 Philadelphia, 250

Feutic
 Hamburg, 470 bgs.

Orchelia
 Lisbon, 41 pkgs. A. Barbosa & Co.

San Francisco, 9 bls.

Shumac
 Palermo, 100 bgs.
 Barcelona, 100

Tarmeric
 Calcutta, 4 bgs.

Valonia
 Syria, 142 bgs. Barff & Co., Ld.
 Smyrna, 940 kils. 120 t. Barry Bros.
 " 180 bgs.

Farina—
 Fiume, 150 bgs. C. T. Vander Veen & Bro.

" 160 N. W. Jackson
 Trieste, 100
 Marseilles, 300 bls.

Iron Oxide—
 Trieste, 14 cks. Gabain Bros.

Lead Acetate—
 Rouen, 24 cks. R. J. Francis & Co.

Manganese—
 Rouen, 1 ck. Co-op. W'sale Society, Ld.

Mineral White—
 Fiume, 50 bgs.

Nickel—
 Havre, 8 cks. Cunard S. S. Co., Ld.

Ochre—
 Marseilles, 42 brls.

Paraffin Wax—
 Baltimore, 200 brls.

Phosphate Rock—
 Charleston, 700 t.

Plumbago—
 Genoa, 100 bgs.

Potash—
 Rouen, 112 cks. Co-op. W'sale Society, Ld.

Antwerp, 10 dms.

Potash Salts—
 Hamburg, 250 bgs.

Potassium Carbonate—
 Hamburg, 9 cks.

Pumice Stone—
 Tenerife, 162 bgs.

Pyrites— Huelva, 1,317 t. Matheson & Co.	
Salt— Hamburg, 160 t. N. Orleans, 560 sks. D. H. Brong & Co.	
Saltpetre— Hamburg, 50 kgs. 7 brls.	
Soap— New York, 2 cs. Alexandria, 1 S. Schemiel & Co. Marseilles, 5 F. W. Nicholson " 7 Cox Bros. " 5 Boston, 4 W. Edwards & Son	
Soapstone— Genoa, 203 bgs. W. Harrison & Co.	
Sodium Acetate— Antwerp, 11 cks.	
Sodium Nitrate— Pisagua, 3,666 bgs. Caleta Bueno, 5,595 Pisagua, 9,267 Graham, Rowe & Co.	
Rotterdam, 4 cks.	
Starch— Antwerp, 80 cs. J. T. Fletcher & Co.	
Rotterdam, 80 Hamburg, 212	
Stearine— New York, 5 tcs. Antwerp, 3 bgs.	
Sulphur— Catania, 50 bgs. 50 cks.	
Tallow— Santafe, 675 bcys. 120 tcs. 342 hds. Zarate, 284 pps. 50 cks. J. Nelson & Sons, Ltd.	
Tartar— Bordeaux, 8 cks.	
Tartaric Acid— Rotterdam, 4 cks. Hamburg, 1 cs.	
Tin Ashes— Marseilles, 2 cks. Rotterdam, 1	
Waste Salt— Hamburg, 700 bgs. 140 t.	
White Lead— Rotterdam, 32 cks.	
Wood Pulp— Oporto, 1,000 bls. Ciama Wood Pulp Co.	
Hamburg, 40 pkgs.	
Zinc Oxide— New York, 50 brls.	
Zinc Skimmings— New York, 40 brls.	

MANCHESTER.

Week ending August 4th.

Alum— Rotterdam, 16 cks.	
Barytes— Antwerp, 21 cks.	
Carbonic Acid— Rotterdam, 32 tubes	
Cellulose— Hamburg, 116 bls.	
Chemicals (otherwise undescribed) Hamburg, 5 cs.	
Colours— Treport, 28 cks. 3 cs. Rotterdam, 137 38 Hamburg, 20 Antwerp, 3 brls. 4 pkgs.	
Dyestuffs— Extracts Rouen, 15 cks. Antwerp, 15 cs.	
Farina— Hamburg, 250 bgs.	
Glucose— Hamburg, 13 cks.	
Mercury— Rotterdam, 6 cs.	
Nitrate— Rotterdam, 8 cks.	
Oxalic Acid— Rotterdam, 15 cks.	
Pitch— Rotterdam, 22 cks.	

Potash— Rouen, 4 dms. Treport, 4 Antwerp, 9	
Pumice Stone— Hamburg, 2 cs.	
Pyrites— Huelva, 1,302 t. P. Spence & Sons	
Soda Crystals— Rouen, 11 cks.	
Starch— Hamburg, 160 cs. Antwerp, 160 Rotterdam, 40	
Sulphate— Rotterdam, 2 cks.	
Tartaric Acid— Hamburg, 3 cks.	
Ultramarine— Rotterdam, 5 cs. 1 ck.	
Varnish— Hamburg, 2 cs.	
Wood Pulp— Hudiksvall, 2,400 bls.	
Zinc Ashes— Hamburg, 4 cks.	
Zinc Oxide— Rotterdam, 80 brls. 6 cs.	

HULL.

Week ending August 4th.

Acetic Acid— Rotterdam, 20 blms. Hutchinson & Son	
Acid— Bari, 53 cks. Wilson, Sons, & Co., Ltd.	
Arsenic— Hamburg, 118 cks. Wilson, Sons, & Co., Ltd.	
Asbestos— Rotterdam, 1 bl. Hutchinson & Son	
Barytes— Rotterdam, 43 cks. Hutchinson & Son Antwerp, 43 50 bgs. Bailey & Leatham	
Carbonic Acid— Rotterdam, 50 tubes Hutchinson & Son	
Chemicals (otherwise undescribed) Amsterdam, 1 ck. W. & C. L. Ringrose Stettin, 15 cks. Wilson, Sons, & Co., Ltd.	
" 4 Bremen, 4 pks. Veltmann & Co.	
Hamburg, 5 Wilson, Sons, & Co., Ltd.	
Dunkirk, 20 Antwerp, 75 Wilson, Sons, & Co., Ltd.	
Colours— Rotterdam, 10 cks. 44 pks. 2 cs. Hutchinson & Son " 1 5 cs. W. & C. L. Ringrose Hamburg, 3 20 G. Malcolm & Son	
Antwerp, 1 Bailey & Leatham	
Bremen, 4 2 Veltmann & Co.	
" 1 J. Pyefinch & Co.	
Danzig, 32 Wilson, Sons, & Co., Ltd.	
Hamburg, 8 "	
Cryolite— Copenhagen, 5 cks. Wilson, Sons, & Co., Ltd.	
Dyestuffs— Argols Bordeaux, 9 bgs. Rawson & Robinson	
Fustic Hamburg, 49 pcs. Wilson, Sons, & Co., Ltd.	
Logwood Hamburg, 284 pcs. 30 bgs. Wilson, Sons, & Co., Ltd.	
Shumac Trieste, 30 bls. Wilson, Sons, & Co., Ltd.	
Palermo, 50 bgs. "	
" 1,050	

Farina— Haringen, 140 bgs. Stettin, 200 Wilson, Sons, & Co., Ltd.	
Glucose— Stettin, 5 cks.	
Mercury— Dunkirk, 3 pks. Wilson, Sons, & Co., Ltd.	
Mineral White— Trieste, 80 bgs. Wilson, Sons, & Co., Ltd.	
Paint— Boston, 20 cs. Wilson, Sons, & Co., Ltd.	
Helsingfors, 1 ck.	
Phosphate— Ghent, 81 t.	
Pitch— Hamburg, 78 cks.	
Pumice Stone— Messina, 57 bgs. Wilson, Sons, & Co., Ltd.	
Rosin— Rotterdam, 4 cks. W. & C. L. Ringrose	
Bordeaux, 6	
Soap— Bari, 156 cs. Wilson, Sons, & Co., Ltd.	
Soda— Rotterdam, 4 cks. W. & C. L. Ringrose	
Starch— Antwerp, 200 cs. Bailey & Leatham	
Bremen, 1,342 Veltmann & Co.	
Sulphur— Catania, 1,910 pks. Wilson, Sons, & Co., Ltd. " 237 50 t.	
Tallow— Boston, 2 brls. 55 tcs. Wilson, Sons, & Co., Ltd.	
Tar— Rafso, 2 hf.-brls. J. Good & Sons	
Tartaric Acid— Rotterdam, 4 cks. Hutchinson & Son	
" 2 Woodhouse & Co.	
Ultramarine— Rotterdam, 18 cks. Hutchinson & Son	
Bremen, 16	
Waste Salt— Hamburg, 50 bgs. Wilson, Sons, & Co., Ltd.	
White Lead— Rotterdam, 25 cks. Hutchinson & Son	
Wood Pulp— Helsingfors, 339 bls. J. Good & Sons " 297 Furley & Co. Norroping, 240	
Zinc Oxide— Rotterdam, 25 cks. Hamburg, 5	

GLASGOW.

Week ending August 9th.

Barytes— Rotterdam, 72 cks. 46 pkgs.	
Barytes Sulphate— Antwerp, 100 bgs.	
Castor Oil— Calcutta, 750 cs. Antwerp, 86 cks.	
Chemicals (otherwise undes.)— Rotterdam, 3 cs. J. Rankine & Son	
Colours— Rotterdam, 5 cs. J. Rankine & Son	
" 12 pkgs.	
Dyestuffs— Alizarine Rotterdam, 96 cks. 56 pkgs.	
Argols Bordeaux, 28 bgs.	
Cutch Calcutta, 1,500 cs.	
Extracts New York, 20 cs. Nantes, 200 cks. Antwerp, 21	
Turmeric Calcutta, 749 bgs.	

Farina— Delfslyhl, 500 bgs.	
Lead Acetate— Rouen, 13 cks.	
Oxalic Acid— Rotterdam, 12 cks. J. Rankine & Son	
Paint— New York, 1 brl. T. Kerr & Co	
Painters' Colours— Antwerp, 6 cks.	
Phosphates— Ghent, 2,040 bgs.	
Pitch— Archangel, 850 brls.	
Potash— Antwerp, 2 cks.	
Pyrites— Huelva, 3,091 t. Tharsis Co.	
Saltpetre— Colombo, 1 cs.	
Soap— Rotterdam, 4 cs. J. Rankine & Son	
Soda— New York, 1 ck.	
Sodium Sulphate— Antwerp, 5 cks.	
Starch— Antwerp, 100 cs. 40 pkgs. Rotterdam, 20 J. Rankine & Son	
Tallow— New York, 10 tcs. Boston, 20	
Tar— Archangel, 3,081 brls.	
Tartar— Bordeaux, 46 cks. Oporto, 8	
Varnish— New York, 69 brls.	
Waste Salt— Hamburg, 108 t.	
White Lead— Rotterdam, 14 cks. " 46 J. Ranki & Son	
Wood Pulp— Christiania, 528 bls.	
Zinc Oxide— Antwerp, 25 cks.	
Zinc White— Rotterdam, 50 cks. J. Rankine & Son	

TYNE.

Week ending August 4th.

Barytes— Rotterdam, 46 cks. Tyne S. S. Co.	
Chemicals (otherwise undescribed) Hamburg, 1 cs. Tyne S. S. Co.	
Manganese Ore— Gothenburg, 16 cks.	
Soap— Rotterdam, 5 cs. Tyne S. S. Co.	
Starch— Rotterdam, 91 pkgs. 80 cs. Tyne S. S. Co.	
White Lead— Antwerp, 40 brls.	
Wood Pulp— Christiania, 235 bls. 68 pkgs. Hamburg, 118 Tyne S. S. Co.	
Zinc Oxide— Rotterdam, 25 cks. Tyne S. S. Co. Antwerp, 20 brls.	

GOOLE.

Week ending August 1st

Acetic Acid— Rotterdam, 20 cbys.	
Aniline— Rotterdam, 12 pkgs.	
Aniline Dyes— Ghent, 2 kgs.	
Antimony— Boulogne, 2 cks.	
Colours— Ghent, 4 cks.	
Dyestuffs— Alizarine Rotterdam, 72 pkgs. Extracts Ghent, 100 cks.	

Indigo
Rotterdam, 18 cts.
Dyestuffs (otherwise undescribed)
Rotterdam, 80 pks.
Boulogne, 3 cks. 16 cs.
Antwerp, 2

Saltpetre—
Hamburg, 42 cks.
Tartaric Acid—
Rotterdam, 2 cks.
Waste Salt—
Hamburg, 120 t.

GRIMSBY.
Week ending August 4th.
Aniline Dyes—
Antwerp, 35 pks.
Caoutchouc—
Hamburg, 12 cs.

Chemicals (otherwise undescribed)
Hamburg, 37 cs.
Antwerp, 2
Dyestuffs (otherwise undescribed)
Dieppe, 36 cks.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 8th.

Acids—
Santos, 9 cs. £16
Ammonia (Liquid)—
Hong Kong, 10 cs. £45
Colombo, 2 cs. 16
Natal, 19 32
Ammonium Carbonate—
Rouen, 1 t. 17 c. £25
Melbourne, 5 9
Ammonium Chloride—
Cologne, 11 brls. £72
Galatz, 6 c. 11
Alexandretta, 1 t. 2 38
Ammonium Nitrate—
Bilbao, 71 brls. £356
Ammonium Sulphate—
Treport, 5 t. £70
Benzoic Acid—
Rotterdam, 1 cs. £23
Borax—
Hamburg, 8 c. 10 cks. £96
Copenhagen, 19 47
Haringen, 8 28
Carbolic Acid—
Algoa Bay, 10 dms. 9 c. £25
Hamburg, 80 cks. 584
Riga, 24 brls. 101
Calcutta, 20 dms. 6
Melbourne, 8 c. 13
Caustic Soda—
Cape Town, 7 c. £10
Delagoa Bay, 3 t. 3 40
Algoa Bay, 18 31
Chemicals (otherwise undescribed)
Algoa Bay, 2 cs. £15
Keppel Bay, 10 c. 14
Hamilton, Ont., 8 19
Lyttelton, 24 cks. 88
Citric Acid—
Fremantle, 1 c. £8
Genoa, 3 t. 11 473
Rotterdam, 1 ck. 32
Libau, 10 67
Bombay, 6 27
Coal Products—
Benzol
Brussels, 10 brls. £20
Treport, 12 cks. 113
Creosote Oil
Treport, 25 cks. £75
Naphthalene
Hamburg, 10 cks. £9
Paraffin Wax
Auckland, 4 cs. £15
Antwerp, 50 146
Pitch
Falkland Islands, 6 cks. £12
Alexandria, 150 brls. 42
Tar
St. John's, Nfld., 70 pks. £35
Natal, 275 dms. 15
Copper Sulphate—
Odessa, 4 t. 10 c. £63
Antwerp, 10 140
Cream of Tartar—
Wellington, 12 c. £40
Algoa Bay, 2 8
Disinfectants—
Hamburg, 17 t. 17 c. 372
Hong Kong, 19 cs. 43
Stockholm, 10 15
Manure—
Hamburg, 108 t. 16 c. £450
Valencia, 592 16 5,189
Riga, 303 11 780
Gothenburg, 516 3 1,348
Genoa, 30 120
Rostock, 400 1,480
Huelva, 304 10 1,220
Oxalic Acid—
Melbourne, 2 t. 15 c. £93

Phosphate—
Stettin, 600 t. £1,200
Phosphorus—
E. London, 3 cs. £30
Potassium Chlorate—
Melbourne, 5 c. £15
Potassium Cyanide—
Halifax, 2 c. £22
Saltpetre—
Pernambuco, 2 t. 17 c. £67
Keppel Bay, 1 2 24
Melbourne, 1 5 29
Rio de Janeiro, 2 4 52
Sheep Dip—
Natal, 14 c. £40
Novorissisk, 100 cs. 200
Algoa Bay, 2 t. 5 98
Soda—
Falkland Islands, 3 t. 5 c. £16
Natal, 1 1 7
Soda Crystals—
Singapore, 10 t. £22
Newcastle, 27 3 c. 61
Natal, 4 2 9
Sydney, 50 115
Algoa Bay, 5 24
Sodium Bicarbonate—
Hamilton, Ont., 13 c. £13
Sodium Bisulphite—
Lyttelton, 3 t. 9 c. £16
Sodium Tartrate—
Montreal, 6 c. £15
Sulphur—
Algoa Bay, 5 t. £28
Sulphuric Acid—
Natal, 3 t. 9 c. £18
Superphosphate—
Riga, 693 t. £2,097
Libau, 346 1,038
Tartaric Acid—
Wellington, 4 c. £15
Algoa Bay, 2 11

LIVERPOOL.

Week ending August 8th.

Acetate of Lime—
Montreal, 11 c. 2 q. £7
Albumen—
New York, 1 ck. £20
Alum—
Halifax, 4 t. 2 c. £20
Rio de Janeiro, 2 4 13
Tripoli, 2 2 q. 10
Penang, 2 15 19
Alumina Sulphate—
Rio de Janeiro, 2 t. 1 c. £10
Ammonium Carbonate—
Hamburg, 10 c. £18
Barcelona, 1 t. 3 q. 36
Ammonium Chloride—
San Francisco, 10 c. £19
Alexandria, 10 brls. 37
Ammonium Sulphate—
La Pallice, 49 t. 13 c. £693
Valencia, 10 1 3 q. 142
Antwerp, 19 19 3 265
New York, 25 10 363
Las Palmas, 25 353
Gd. Canary, 4 57
Bleaching Powder—
Baltimore, 163 cks. £1
Barcelona, 1 8 cs.
Bombay, 650
Calcutta, 84 125
Callao, 17 6
Cornwall, Ont., 17
Dunkirk, 19
Genoa, 35
Havre, 25
Montreal, 27
Newport News, 80

New York, 169 25 brls.
Philadelphia, 283
Seville, 47
Chicago, 50 bxs.
Leghorn, 30
Lisbon, 6
Piramus, 3
Venice, 3
Corunna, 8
Malaga, 10
Boracic Acid—
Havre, 4 t. 19 c. 2 q. £158
Borate of Lime—
Antwerp, 25 t. 6 c. £240
Borax—
Rotterdam, 3 t. 9 c. £83
Rouen, 5 108
Montreal, 11 12
Pasages, 2 1 46
Sydney, 1 24
Antwerp, 1 2 3 26
Calcium Chloride—
Calcutta, 2 t. £7
New York, 16 3 c. 3 q. 69
Caoutchouc—
Santos, 1 cs.
Carbolic Acid—
Montreal, 1 c. 3 q. £29
Yokohama, 6 t. 9 320
Hamburg, 2 6
New York, 3 13 3 216
Copenhagen, 1 1 3 60
Rotterdam, 5 265
Castor Oil—
Addah, 20 cs.
Caustic Potash—
Chicago, 1 t. 1 c. £26
Naples, 2 42
Caustic Soda—
Adelaide, 60 dms.
Amsterdam, 17
Antwerp, 82
Baltimore, 250
Barcelona, 298 66 brls.
Bilbao, 36
Bombay, 53
Bordeaux, 3
Boston, 450
Bremen, 5
Calcutta, 135
Callao, 76
Cape Town, 30
Cartagena, Sp., 20
N.G., 15
Ceara, 95
E. London, 11
Fiume, 70
Galatz, 30
Genoa, 126
Hamburg, 145
Hamilton, Ont., 30
Havana, 15
Hong Kong, 36
Malaga, 30
Malta, 15
Manaos, 37
Mauritius, 37
Messina, 145
Mexico, 400
M. Video, 150
Naples, 68
New York, 479
Odessa, 56
Oporto, 30
Pernahyba, 20
Pernambuco, 100
Philadelphia, 35
Pimental, 14
Quebec, 30
Rangoon, 16
St. Petersburg, 550
San Francisco, 100 10 10 bxs.
San Sebastian, 100
Santander, 15
Seville, 432 25 cks.
Sydney, 62
Vera Cruz, 112

Victoria, B.C., 27
Yokohama, 250
Acapulco, 88
Alexandria, 3
Chicago, 150 50
Cienfuegos, 15
Copenhagen, 4
Corral, 10
La Guayra, 10
Madrid, 10 40
Melbourne, 133
Nagasaki, 75
Rotterdam, 49
Rouen, 20
St. John's, Nfld., 35
Shanghai, 30
Singapore, 25
Venice, 100
Vigo, 15
Aracaju, 10
Bahia, 10
Carapuanu, 12
N. Orleans, 12
Pasages, 300
Santos, 15
Valparaiso, 100
Chemicals (otherwise undescribed)
Rio de Janeiro, 10 cks. £50
New York, 5 t. 6 c. 170
Philadelphia, 13 1 417
China Clay—
Barcelona, 5
Bombay, 227 15
Boston, 1,444 6
Calcutta, 30
Malaga, 9 12
New York, 50 3 cks.
Philadelphia, 250
Rio de Janeiro, 10 5
Coal Products—
Alizarine Oil
Vera Cruz, 10 cks.
Aniline Colours
Constantinople, 1 cs.
Aniline Oil
Barcelona, 27 cks.
Marseilles, 12 Jms. 10 tins
Aniline Salts
Boston, 40 cs.
New York, 51
Creosote Oil
Hamburg, 27 cks.
Mirbane Oil
Maranham, 4 dms.
Naphthol
New York, 4 cks.
Pitch
New York, 10 t.
Rouen, 2 cks.
Galatz, 30 brls.
Tar
Philadelphia, 100 brls.
Sierra Leone, 30 kgs.
Tuticorin, 6 cks.
Coal Products (otherwise undes.)—
New York, 18 cks.
Cobalt Oxide—
Nagasaki, 2 c. 2 q. £92
Valencia, 1 30
Colours—
Boston, 2 kgs.
Calcutta, 5 cks. 10 cs.
New York, 7 3 bxs.
Toronto, 2
Copperas—
Smyrna, 6 t. 9 c. £10
Tripoli, 8 17 14
Copper Sulphate—
Rouen, 15 t. 13 c. £197
Fiume, 22 334
Rotterdam, 3 1 48
Savannah, 1 1 1 q. 17
Montreal, 5 1 1 68
M. Video, 7 9 1 101
Odessa, 10 2 3 136
Vera Cruz, 12 10 174

MANCHESTER.

Week ending August 9th.

Alizarine —	
Rio de Janeiro, 4 kgs.	
Alum —	
Rouen, 6 cks.	
Aniline Oil —	
Antwerp, 12 dms.	
Rouen, 5	
Aniline Salts —	
Antwerp, 2 kgs	
Chemicals (otherwise undescribed)	
Rotterdam, 34 cks.	
Colours —	
Hamburg, 1 kg.	
Cream of Tartar —	
Hamburg, 5 cks.	
Extracts —	
Treport, 6 cks.	
Indigo —	
Bahia, 5 cks.	
Mercury —	
Hamburg, 1 cs.	
Paraffin Wax —	
Rio de Janeiro, 4 cs.	
Pitch —	
Treport, 20 t.	
Plumbago —	
Bahia, 1 cs.	
Pyridine —	
Hamburg, 6 cks.	
Soap —	
Malta, 24 bxs.	
Sodium Bicarbonate —	
Treport, 1 ck.	
Sulphur Chloride —	
Treport, 2 cs.	
Tar Oil —	
Treport, 25 brls.	
Tar Salts —	
Rotterdam, 32 cks.	

HULL.

Week ending August 4th.

Alkali —	
Stettin, 19 cks.	
Ammonium Sulphate —	
Hamburg, 38 bgs.	
Bleaching Powder —	
Helsingfors, 9 cks.	
Naples, 33	
Stettin, 67	
Wasa, 3	
Caustic Soda —	
Abo, 5 cks.	
Danzig, 103 dms.	
Helsingfors, 6	
Naples, 32	
Wyburg, 7 42 cs.	
Chemicals (otherwise undescribed)	
Amsterdam, 1 cs.	
Antwerp, 1 ck. 24	
Abo, 9 cks.	
Bergen, 5	
Christiania, 6	
Danzig, 47	
Gothenburg, 2 191 slbs 5	
Hamburg, 7 93 cs.	
Harlingen, 45	
Libau, 35 10	
Marseilles, 1	
Naples, 9	
Odessa, 28	
Riga, 4	
Rotterdam, 15 50	
Stettin, 26	
St. Petersburg, 160	
Uleaborg, 5	
Cottonseed Oil —	
Amsterdam, 21 c.	
Antwerp, 100	
Gothenburg, 10	
Hamburg, 838	
Konigsberg, 201	
Rotterdam, 989	
Stockholm, 40	
Dyestuffs (otherwise undescribed)	
Christiania, 12 bls.	
Danzig, 2 cks. 2 cs.	
Rouen, 8	
Riga, 2	
Rotterdam, 3	
St. Petersburg, 5	
Guano —	
Hamburg, 25 t.	

Linseed Oil—

Antwerp, 31 c.	
Copenhagen, 34	
Christiania, 683	
Drontheim, 52	
Hamburg, 125	
Helsingfors, 52	
Rotterdam, 51	
Wasa, 70	
Manure —	
Genoa, 52 tyns.	
Ochre —	
Gothenburg, 10 cks.	
Paint —	
Bergen, 1 cs.	
Painters' Colours —	
Amsterdam, 3 cs.	
Antwerp, 50 cks 3 4 dms.	
Abo, 20 pkgs	
Bergen, 5 65 4 dms.	
Copenhagen, 19 1 5	
Christiansund, 44 kgs.	
Christiania, 16 1 25 dms.	
Drontheim, 16 1 140	
Genoa, 30	
Gothenburg, 11 1	
Hamburg, 11 1 2	
Helsingfors, 1 1	
Konigsberg, 1	
Laghorn, 74	
Marseilles, 24	
Odessa, 50	
Rouen, 10 7 1 18	
Rotterdam, 1 1 1	
Stockholm, 7 1 5	
Stettin, 1 1 5	
St. Petersburg, 50 10	
Stavanger, 6	
Pitch —	
Antwerp, 310 t.	
Helsingfors, 68 cks.	
Salt —	
Drontheim, 1 cs.	
Slag —	
Danzig, 291 t.	
Gothenburg, 200	
Soap —	
Copenhagen, 20 cs.	
Christiansund, 1	
St. Petersburg, 10	
Superphosphate —	
Memel, 620 t.	
Tallow —	
Rotterdam, 29 cks.	
Stockholm, 25	
Tar —	
Antwerp, 3 cks.	
Ghent, 322	
Hamburg, 10	
Helsingfors, 150	
Rotterdam, 10	
Varnish —	
Antwerp, 9 cks. 2 cs.	
Abo, 1	
Copenhagen, 606 8 bls.	
Danzig, 2	
Ghent, 1	
Genoa, 1	
Gothenburg, 1	
Hamburg, 4 7	
Rotterdam, 1 1 dm.	
Stockholm, 1 1	

GLASGOW.

Week ending August 9th.

Ammonium Sulphate —	
Hamburg, 522 bgs.	£693
Asbestos —	
Bombay, 5 t.	£69
Calcutta, 34	
Bleaching Powder —	
Calcutta, 2 t. 10 c.	£325
Borax —	
Cape Colony, 1 t.	£22
Caustic Soda —	
B. Ayres, 3 t. 12 c.	£38
Chemicals (otherwise undescribed)	
Rotterdam, 20 dms.	£160
Coal Products —	
Aniline	
Oporto, 1 t. 5½ c.	£30
Aniline Salts	
Lisbon, 8 c.	£27
Benzol	
Hamburg, 6 dms.	£125
Pitch	
Canada, 86	
New York, 272 t. 19½ c.	£415
Tar	
Canada, 24	
Christiania, 5 brls,	7

Tar Oil	
B. Ayres, 4000 glns.	£152
Copperas —	
Montreal, 25 t. 1 c.	£35
Dyestuffs —	
Alizarine	
Montreal, 9¾ c. £39. 11s.	
Extracts	
Montreal, 1 t. 8½ c.	£50
Logwood	
Montreal, 5 t. 1½ c. £44. 13s.	
Oporto, 3 15 35	
Dyestuffs (otherwise undescribed)	
Lisbon, £80	
Glucose —	
Cape Colony, 14 t. 6 c.	£168
Linseed Oil —	
Chili, 6 t. 4½ c.	£168
Litharge —	
Lisbon, 2 t. 7 c.	£27
Magnesium Sulphate —	
Bombay, 20 t. 4 c.	£89
Paint —	
Natal, 15 c. £21. 10s.	
Chili, 8 t. 7½	£124
Painters' Colours —	
Montreal, 1¾ c.	£32
Calcutta, 15 t. 19 318	
B. Ayres, 3 12½ 46	
Bombay, 73	
Paraffin Wax —	
Rouen, 1 t. 7½ c	£34
Rotterdam, 1 4 26	
Cape Colony, 8 16½ 176	
Bordeaux, 2 1½ 63	
Potassium Bichromate —	
Boston, 11 t. 13½ c.	£464
Rouen, 20 19½ 836	
Lisbon, 7 280	
Bordeaux, 5 2 204	
Potassium Prussiate —	
New York, 9 t. 1 c.	£762
Slag —	
Rotterdam, 352 t.	£122
Soap —	
Lisbon, 2 t. 5 c.	£39
New York, 5 13 101	
Sodium Bichromate —	
Rouen, 6 t. 17½ c.	£230
Sodium Sulphate —	
Calcutta, 3 t. 8 c.	£21
Sulphate of Lead —	
Rotterdam, 14 cks.	£34
White Lead —	
Montreal, 9 t. 13 c.	£165
Bombay, 27	

TYNE.

Week ending August 4th.

Alkali —	
New York, 95 t. 6 c.	
Amsterdam, 36	
Stockholm, 4 16	
Alum Cake —	
Newfairwater, 7 t. 10 c	
Antimony —	
New York, 45 t.	
Ergasteria, ¾ c.	
Montreal, 2	
Arsenic —	
Stockholm, 18 c.	
Barium Bin oxide —	
Rouen, 25 l. 13 c.	
Dunkirk, 4 4	
New York, 1 4	
Barytes —	
Dunkirk, 5 t.	
Barytes Carbonate —	
Rouen, 12 t. 2 c.	
Hamburg, 154	
Bleaching Powder —	
Rouen, 5 t. 1 c.	
New York, 24 19	
Hamburg, 115 9	
Amsterdam, 27 10	
Antwerp, 17 19	
Christiania, 5 4	
Seville, 9 17	
Aalborg, 2 6	
Odense, 1 9	
Copenhagen, 18 8	
Home, 24 13	
Rotterdam, 55 2	
Bergen, 11	
Newfairwater, 18 10	
Montreal, 19 7	
Gothenburg, 31 4	

Borax Crystals —	
Seville, 2 t. 3 c.	
Caustic Soda —	
Genoa, 24 t. 13 c.	
Rouen, 3 9	
New York, 35 2	
Hamburg, 3 7	
Seville, 49 7	
Gefle, 9 17	
Odense, 4 2	
Copenhagen, 1 15	
Montreal, 30 9	
Linseed Oil —	
Montreal, 2 t. 9 c.	
Litharge —	
Amsterdam, 10 c.	
Montreal, 27 t. 17	
Magnesia —	
Genoa, 13 c.	
Rouen, 3	
Hamburg, 2	
Libau, 1	
Magnesium Carbonate —	
Rouen, 15 c.	
Oxalic Acid —	
Odense, 14 c.	
Copenhagen, 11	
Paint —	
Antwerp, 16 c.	
Copenhagen, 5	
Phosphorus —	
Genoa, 1 t. 2 c.	
Slag —	
Rotterdam, 297 t.	
Soda —	
Hamburg, 3 t. 4 c.	
Amsterdam, 5 18	
Christiania, 10 8	
Christiansand, 10 1	
Stavanger, 5	
Gefle, 25 2	
Rotterdam, 10 8	
Bergen, 2 3	
Drontheim, 10 1	
Montreal, 45 3	
Gothenburg, 15 3	
Hangesund, 1 12	
Soda Ash —	
Christiania, 13 t.	
Seville, 1 7 c.	
Gefle, 10	
Hernosand, 150 10	
Gothenburg, 75 2	
Sodium Hyposulphite —	
Montreal, 5 t. 11 c.	
Sodium Silicate —	
Seville, 5 t. 5 c.	
Sodium Sulphate —	
Helgenæs, 234 t. 11 c.	
Gothenburg, 6 6	
Stearine —	
New York, 11 t.	
Sulphur —	
Christiania, 50 t.	
White Lead —	
New York, 5 t.	
Montreal, 137 17 c.	
Whiting —	
Seville, 2 t.	

GOOLE.

Week ending August 1st.

Alkali —	
Dunkirk, 30 dms.	
Chemicals (otherwise undescribed)	
Ghent, 10 cks.	
Hamburg, 28 2 dms.	
Rotterdam, 30	
Coal Products (otherwise undes.) —	
Boulogne, 50 cks.	
Hamburg, 2	
Dyestuffs (otherwise undescribed)	
Ghent, 2 cks.	
Hamburg, 57 bgs.	
Manure —	
Boulogne, 129 bgs.	
Rotterdam, 176	
Rouen, 93	

GRIMSBY.

Week ending August 4th.

Chemicals (otherwise undescribed)	
Dieppe, 7 cks. 1 ck. 127 pkgs.	
Hamburg, 4 15 4 brls.	
Coal Products (otherwise undes.) —	
Dieppe, 27 cks.	
Malmö, 50 brls.	

PRICES CURRENT.

WEDNESDAY, AUGUST 15th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	10/6
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous	"	0	0 1¼
Oxalic	nett	0	0 3¼
Phosphoric, 1750°	"	0	1 0
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution) S.G. 1025	"	1	6 0
Tannic (pure)	per lb.	0	1 0
Tartaric	"	0	11
Arsenic, white powdered	per ton	14	0 0
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrous	"	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	"	0	0 2¼
Carbonate	nett	0	0 3¼
Muriate	per ton	22	10 0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-
Nitrate	per ton	44	0 0
Phosphate	per lb.	0	0 10¼
Sulphate (grey) London	per ton	13	15 0
(grey) Hull	"	13	13 9
Aniline Oil (pure)	per lb.	0	0 5½
Aniline Salt	"	0	0 5¼
Antimony	per ton	32	0 0
(tarfar emetic)	per lb.	0	0 9¼
(golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	10 0
Carbonate (native)	"	3	10 0
Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 30/-

Coal Tar Products and Dyes:—

China Clay (at Runcorn) in bulk				1/10 to 3/4
Coal Tar Products and Dyes :—				
Alizarine (artificial) 20 %	net	per lb.	0	0 8
Magenta	"	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit	per cwt.	0	1 1
Benzol, 90 % nominal	"	per gallon	0	0 11
50/90	"	"	0	1 0
Carbolic Acid (crystallised 40°)	"	per lb.	0	5 3/4
" (crude 60°)	"	per gallon	0	1 7
Creosote (ordinary)	"	"	0	0 1 1/2
" (filtered for Lucigen light)	"	"	0	0 2 1/2
Crude Naphtha 30 % @ 120° C.	"	"	0	0 5
Grease Oils, 22° Tw.	"	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	"	1	13 6
Solvent Naphtha, 90 % at 160°	"	per gallon	0	1 3
Lucigen " and " Wells Oils	"	"	0	0 2 1/2
Copper	"	per ton	39	11 3
" Sulphate	"	"	14	5 0
" Oxide (copper scales)	"	"	39	5 0
Glycerine (crude)	"	"	15	0 0
" (distilled S.G. 1250°)	"	"	41	0 0
Iodine	"	nett, per oz.	0	0 9
Iron Sulphate (copperas)	"	per ton	1	5 0
" Sulphide (antimony slag)	"	"	2	0 0
Lead (sheet) for cash	"	"	10	15 0
" Litharge Flake (ex ship)	"	"	13	0 0
" Acetate (white)	"	"	25	0 0
" " brown ")	"	"	15	15 0
" Carbonate (white lead) pure	"	"	20	0 0
" Nitrate	"	"	18	15 0

Lime, Acetate (brown)	per ton	6	0 0
(grey)	"	10	5 0
Magnesium (ribbon and wire)	per oz.	0	2 3
Chloride (ex ship)	per ton	2	10 0
Carbonate	per cwt.	1	17 6
Hydrate	per ton	17	0 0
Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	"	17	15 0
Borate	per cwt.	2	12 6
Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 2
Naphtha (Wood), Solvent	"	0	3 6
Miscible, 60° O.P.	"	0	3 9
Oils:—			
Cotton-seed	per on	21	0 0
Linseed	"	22	10 0
Petroleum, American	per gallon	0	0 5¼
Stearine	per ton	25	15 0
Phosphorus (yellow)	per lb.	0	2 2
(red)	"	0	2 9
Potassium (metal)	per oz.	0	3 7
Bichromate	per lb.	0	0 4½
Carbonate, 90% (ex ship)	per ton	16	15 0
Chlorate	per lb.	0	0 6¼
Cyanide, 98%	"	0	2 3
Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
(Caustic Potash) 75/80 %	"	20	0 0
(Caustic Potash) 70/75 %	"	19	10 0
Nitrate (refined)	per cwt.	1	2 6
Permanganate	per cwt.	3	2 6
Prussiate Yellow	per lb.	0	0 10½
Sulphate, 90 % (ex ship)	per ton	9	15 0
Muriate, 80 % (do.)	"	8	7 6
Silver (metal)	per oz.	0	2 4¼
Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 0
Carb. (refined Soda-ash) 48 %	nett	per ton	4 17 6
(Caustic Soda-ash) 48 %	"	"	4 0 0
(Carb. Soda-ash) 48 %	"	"	4 0 0
(Alkali) 58 %	"	"	3 15 0
(Soda Crystals)	"	"	2 10 0
Acetate (ex-ship)	"	14	5 0
Arseniate, 45 %	"	11	0 0
Chlorate	per lb.	0	0 8
Borate (Borax)	net, per ton	22	0 0
Bichromate	per lb.	0	0 3¼
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10	15 0	
(74 % Caustic Soda)	"	9	15 0
(70 % Caustic Soda)	"	8	15 0
(60 % Caustic Soda)	"	7	15 0
(60 % Caustic Soda, cream) (f.o.b.)	"	7	12 6
Bicarbonate	"	5	12 6
Hyposulphite	"	5	10 0
Manganate, 30%	"	16	0 0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 10½
Nitrite, 98 %	per ton	29	10 0
Phosphate	"	15	0 0
Silicate (glass)	per ton	5	7 6
(liquid, 100° Tw.)	"	4	5 0
Stannate, 40 %	per cwt.	3	0 0
Sulphate (Salt-cake)	per ton	0	17 6
(Glauber's Salts)	"	1	5 0
Sulphide	"	8	10 0
Sulphite	"	5	9 6
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7¼
Barium, 95 %	"	0	0 5
Potassium	"	0	0 7½
Sulphur (Flowers)	per ton	7	5 0
(Roll Brimstone)	"	5	7 6
Brimstone: Best Quality	"	3	15 0
Superphosphate of Lime (26 %	"	2	7 6
Tallow	"	24	0 0
Tin Crystals	per lb.	0	0 6
English Ingots	"	71	0 0
Zinc (Spelter)	per ton	15	7 6
Chloride (solution, 96° Tw.)	"	5	10 0

THE CHEMICAL TRADE JOURNAL

AND

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FOR SALE.—One Mumford and Moody Separator 5 foot size, and Elevator, all complete; also 2 Gasometers with Poles, Chains, and Weights; circumference 45 feet, depth 10 feet.—Apply, Odams Manure and Chemical Company, Ltd., Odams Wharf, Victoria Dock, London, E.

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RADCLIFFE AND PILKINGTON GAS COMPANY.

TO TAR DISTILLERS.

THE Directors of this Company invite **TENDERS** for the purchase of 700 tons of the Surplus Tar now in stock, and to be produced at their works in Radcliffe, during the ensuing ten months.

Particulars may be obtained from the undersigned, to whom endorsed Tenders must be delivered not later than Thursday, the 6th of September.

JAMES BRADDOCK,
Manager and Secretary.

Gasworks, Radcliffe.
August 22nd., 1894.

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CURRENT TOPICS.

THE CYANIDE GOLD EXTRACTION PATENTS.

IT is probable that one of the features of this year in regard to chemical law suits will be the judgment of Mr. Justice Romer, in the action, heard last month, and brought by the Cassell Gold Extracting Company against the Cyanide Gold Recovery Company and others.

The plaintiffs claim relief for infringement of their patent, for extracting gold by means of a solution containing cyanogen or a cyanide. In the defendants' process electricity is used in conjunction with cyanides, and they contend that cyanides alone are no use. In their evidence, however, they do not show that the electric current they employ plays any material part in assisting the action of the cyanide solution.

Apart from this point, the defendants take another view which is very sweeping. It is to the effect that the plaintiff's patent is not valid, and in consideration of the state of public knowledge, the invention was not subject matter for a patent, having been anticipated in a number of other publications.

After five days' hearing out of a total of seven, the arguments of the defendants were cut down and confined to the question of validity only, and on this point the case virtually hangs. Lord Justice Romer said at the conclusion of the plaintiff's case that he was with the defendants on several points; but on the other hand, at the conclusion of the defendants' case, he reminded counsel that in the case of *Rae*, cited to show that cyanide alone was no good, as certain other conditions were necessary, one of which in the defendants' case was electricity, the cited instance failed to support the argument; since in his opinion any one having a doubt as to whether potassium cyanide would dissolve gold in crushed ore, after reading *Rae's* specification could not have any doubt about it.

At the conclusion of the case, Mr. Justice Romer reserved judgment, which has not yet been delivered and probably will be delayed for some while yet. Seeing the matter is *sub judice*, anything like criticism of the case is not permissible. There is, however, little doubt that Mr. Justice Romer's decision, whichever way it goes, will be a learned and competent one, probably embodying an able review of the history of the extraction of gold by means of cyanide.

OXYGEN AS A LIFE PRESERVER.

The recent work of Drs. Haldane and Smith upon the efficacy of oxygen as a protection against the fatal effects of after-damp, promises, in addition to being highly interesting, to be of practical value. The results they have obtained after working with after-damp seem to justify the deductions they have made from the *data* before them. Of course the encumbrances of a miner are manifold as it is, and to propose that he should now carry a breathing apparatus and an oxygen reservoir, in addition to his other apparatus, may be

deemed an insurmountable objection. On the other hand, anything which tends, within reasonable limits, to secure the safety of miners, is worthy of careful consideration, even though it be rather cumbersome.

Such an apparatus as Dr. Haldane suggests would, moreover, only be necessary for what are known as dangerous workings, or when opening new drifts. There are many places where its regular use would not be a necessity, though it might prove a valuable friend at certain times. Provided, therefore, that its life-saving power is sufficiently reliable to make it a thoroughly trustworthy safeguard, it certainly deserves a trial in any working where explosions are likely to occur. It could do no harm in the case of an accident, and if it proved equal to the occasion and accomplished its purpose, its regular adoption would be clearly justified.

There is one possibility, however, which occurs to us, by the realisation of which this life-saving appliance would become a death-dealing one. Dr. Haldane proposes that the 60 or 70 litres of oxygen necessary to operate his breathing apparatus should be compressed into a steel flask of half a litre (0.88 pint) capacity. This is all right, but it is imperative that the flask or bottle should be of drawn steel. Made on any other system the danger of its exploding by concussion, as was the case with a compressed gas cylinder at Bradford last year, will largely discount the advantages of this life-saving appliance. Miners get nasty knocks, and no one who has not experienced locomotion in a pit can appreciate the rough usage to which these compressed oxygen bottles would be subjected. In emphasising this possible source of danger we do not wish to detract from the virtue of Dr. Haldane's apparatus, which is undoubtedly great, while his intentions are highly commendable.

HAS THE NEW GAS BEEN ISOLATED OR MANUFACTURED?

Professor Dewar, in taking exception to the statements of Professor Ramsay and Lord Rayleigh, as he did last week, has not provoked an answer from these two distinguished gentlemen. He has, however, put forward further suggestions based on the assumption of the formation of an allotropic form of nitrogen. This idea has been used for the purposes of argument before, but it must be admitted that in the hands of Professor Dewar it accounts for a series of conditions which agree closely with the properties of the new gas as described by the discoverers. Professor Dewar argues largely by analogy, but chemical changes are frequently characterised, by want of analogy, as much as anything else. He is evidently of the opinion that the discoverers of this gas have not isolated it from the air, but manufactured it. Such an idea doubtless rose in the minds of many besides Professor Dewar, but taking into consideration the eminence of the discoverers it appeared to us that they would hardly commit themselves to the statements they did, without first investigating the possibilities Professor Dewar has indicated. Their tardiness in answering Professor Dewar's suggestions may be due to many and varied reasons, so that for the present it may be as well to delay awhile before inferring that *qui ne dit mot consent*.

THE GOVERNMENT AGRICULTURAL JOURNAL.

The official announcement, made as it were in justification of the existence of this new journal, was a striking confirmation of our forecast of the attitude which would be taken by the Government. Although the news which this monthly will contain will be tolerably ancient by the time it is published, and will therefore probably form a feeble competitor to other agricultural journals, still this very weakness may lead to its becoming a serious competitor in the

matter of advertisements. With stale news it is not likely to have a very wide circulation, and it will therefore all the sooner need more advertisements to save the department expense, and so "save the public purse." Advertisements are indefensible in Government journals. If such journals are of any value the public should be made to pay a price for them which would cover the cost of production. If the public won't do so they do not justify their existence.

Whichever way the matter is looked at the principle of accepting advertisements is wrong. Competition as an advertising medium between the recognised journals which have to pay ordinary and editorial expenses, and publications which pay no rent, no staff, no contributors, and have no libel or similar responsibilities, cannot be anything else than unfair. Now, if it is a Government maxim to refrain from competing with external interests, how much more should *unfair* competition be vetoed.

THE NEW GAS.

FOLLOWING up his letter to the *Times* from which we quoted last week, Professor Dewar writes further:—I have pointed out certain difficulties which suggest themselves as to the elementary character of the new constituent of the atmosphere, and its presence in normal air to anything like the amount of one per cent. If, however, we assume the substance separated by Lord Rayleigh and Professor Ramsay to be composed of known elements then the experimental results can be easily explained. We have only to assume that when nitrogen enters into chemical combination with an other substance, whether oxygen, as in the case of Lord Rayleigh's plan of working, or magnesium, as in that of Professor Ramsay, a small portion of the gas is condensed molecularly into an allotropic form, having one-and-a-half times its normal density. We are familiar with such action in the case of the transition of oxygen into ozone, and practically identical methods are being employed in the assumed separation of the new substance from air. It would appear that electrical discharges acting alone upon nitrogen do not condense it, and in this respect it differs from oxygen. Yet it is well known that electrical stimulation of nitrogen does produce two distinct spectra presumably due to different molecular conditions.

The theoretical density of the new nitrogen compared to hydrogen should be 21, while the experimental numbers are between 19 and 20, though these are admittedly too low. Such a body chemists would infer ought to be characterized by great inertness, because phosphorus, the element most nearly allied to nitrogen, easily passes into an allotropic form known as red phosphorus, which is relatively to the yellow phosphorus an inert body. If therefore such an active substance as phosphorus becomes in its condensed form far less active chemically, then by analogy nitrogen, so inert to start with, must in its new form become exceedingly inactive. No doubt the passage of the ordinary nitrogen, or the diatomic form of the substance, to the triatomic form of the same, takes place with evolution of heat, just as in the similar transition in the case of phosphorus. While this hypothesis accords with the facts, it does not necessarily support the view that the triatomic nitrogen is present to the extent of one half per cent. in normal air. On the contrary, the inference is that the new substance is being manufactured by the respective experimenters, and not separated, as they imagine, from the ordinary air. If the suggested view is correct it is certain that the allotropic nitrogen would be far less volatile than the ordinary variety, just as the vapour-pressure of red phosphorus is small as compared with that of the yellow, and, therefore it ought to be separated from liquid air by its higher boiling point, even if it did not become solid at the existing temperature. Its non-appearance supports the view that it can be present in air, if present at all, only in exceedingly small amount. Yet were it produced in ever such small quantity—for example, by the passage of electric discharges—its very inertness would favour its accumulation, just as the high chemical activity of ozone tends to its dissipation. If, therefore, in the long course of ages the quantity of this triatomic form of nitrogen remains inappreciable, we are scarcely entitled to assume its existence as a normal constituent of the atmosphere, unless we also assume that it is being utilized in some unknown way.

It is not the first time that chemists and physicists have been tempted to believe in the production of an allotropic form of nitrogen, and to accept it as explaining certain curious phenomena, but hitherto the assumption has always broken down on more careful investigation. This time we may be permitted to hope that the elusive allotropic form has been fairly captured.

Official Memoranda.

(From the Board of Trade Journal.)

THE CHANGES IN THE CANADIAN TARIFF.

(Concluded from page 48.)

The following is an abstract of the articles which are now placed under the *free list*, a portion of which has been already given:—

Bromine.	Muriate of Potash.
Slag.	Bichromate of Potash.
Chloride of Lime.	Caustic Potash.
Cinnabar.	Red Prussiate of Potash.
Tar and Pitch.	Yellow Prussiate of Potash.
Cobalt Ore.	Carbonate of Potash.
Cyanide of Potash.	Red Liquor.
Dyeing and Tanning Articles.	Rosin and Rosin Oil.
Fertilizers (including German Potash Salts).	Salt (from U.K.).
Gypsum.	Sulphate of Soda.
Iodine (crude).	Soda Ash.
Litharge.	Caustic Soda.
Manganese Oxide.	Silicate of Soda.
Nickel.	Bichromate of Soda.
Oxalic Acid.	Nitrate of Soda.
Phosphorus.	Sulphide of Soda.
Potash.	Nitrite of Soda.
Chlorate of Potash (for manufacturers only).	Arseniate of Soda.
Biarseniate of Soda.	Sulphate of Copper.
Chloride of Soda.	Sulphur (roll and flour).
Chlorate of Soda.	Tartar Emetic.
Bisulphite of Soda.	Cream of Tartar.
Stannate of Soda.	Turpentine.
Sulphate of Iron.	Ultramarine.
	Verdigris.

REMOVAL OF DUTY FROM NAPHTHALINE.

Her Majesty's Chargé d'Affaires at The Hague has forwarded to the Foreign Office a translation of a decree removing the import duty from naphthaline imported into the Netherlands in the pure or impurified state, and also when powdered, in crystals or irregular pieces.

THE BARBADOS SUGAR INDUSTRY.

The "Barbados Globe" takes a very mournful view of the condition of the sugar industry, and considers that the sugar interest in the West Indian islands is approaching a crisis which is every day becoming more painfully apparent. The low price of sugar for the last two years is of itself a fact sufficiently depressing to proprietors, but now that the cane disease has become so prevalent, things are looking still more unfavourable; and so there is nothing left, if things do not pick up, but to either retire or take up some new industry in place of the declining cane.

SALT IN TURKESTAN.

A commencement has been made with the working of a rich deposit of salt which has been discovered at a distance of 15 verstes from the eastern side of Lake Raug-Koul, not far from the road going by the heights of Touzgoun and Kizyl-Djik to Mouz-Kol. At the present time the salt is extracted at two places, situated at a distance of from 22 to 25 sagues from each other. At these places the salt appears at the surface of the soil. Borings have shown that the places where the salt appears at the surface form the meeting place of two beds of salt following opposite directions. The bed of salt is two or three archines in thickness. [15 verstes—10 miles. Sagene—7 feet. An archine is approximately 29 inches.—E.D. C. T./.]

THE CARRIAGE OF OILS IN RUSSIA.

Mr. P. Stevens, Her Majesty's Consul at Batoum, states that the Russian Government has granted a further reduction of 5 copecks per poud (6s. 8d. per ton) on the transport of light oils by the Trans-Caucasian Railway, which came into force on the 1st (13th) July, thus reducing the cost of transport between Baku and Batoum to 9 copecks per poud.

It is hoped that this concession in favour of the trade will enable Russian exporters to ship light oils at Batoum at prices which will admit of their successfully competing with American oils. As a result, since the reduced tariff has come into operation, a slight revival in the shipments of refined petroleum, in cases and in bulk by tank-steamer, for ports situated beyond the Suez Canal, is noticeable.

MACHINERY FOR JAPAN.

Writing of the Japanese import trade in machinery, Mr. Troup, Her Majesty's Consul at Yokohama, states:—Under the heading of machinery, that for spinning purposes again shows a considerable amount, owing to the continued development of the spinning industry in this country. In the report of the trade at Yokohama for the year 1890 it was remarked that the continental packing of machinery and plant was more careful than the English. The same is still true; and wonder is sometimes expressed that English makers should spend so much time in the making of machinery well, while they apparently take little pains to secure that it arrive at its destination in good condition. It may also be remarked that English makers do not pay so much attention to the get-up of specifications and drawings as their competitors do. They are apt, too, apparently, to think that as data sent from here are often not very complete, business is not likely to result, and hence do not take much trouble to obtain it. The reason for more details not being supplied is that the Japanese engineers are not in most cases able to specify in detail what is wanted, and leave many details to the maker. At the same time, where suggestions are made by the former in the way of what they think improvements, it would be for the interest of the English maker that he paid as much attention to such suggestions as the continental maker appears to do.

At the risk of repeating what has also been alluded to in a former report, it should be again noted here that it is not sufficient for makers at home to have travellers or experts visiting this country with a view to business. It is not to be expected that such can meet with much success, unless where working in concert with firms which have connections on the spot and local knowledge.

THE STATE OF THE CHEMICAL TRADES.

THERE is considerable depression in the chemical, white lead and cement industries in the Tyne and Wear districts. Papermakers are also quiet. About Burnley and district the dyeing trade is by no means brisk, and by some short time is being worked. The same may be said for the Manchester district, only short time is more prevalent. Chemical manufactories around St. Helens and Widnes are no better than they were a month previous. The glass trade in the same districts is also decidedly bad. Round Winsford the chemical trade continues dull, and the salt trade is, if anything, rather worse. The paper and pulp works around Barrow keep busy, constituting a pleasing exception, and the salt trade in the Middlesbrough district continues fairly busy. The glass bottle trade at Leeds and neighbourhood is very slack. There is fairly well doing in the colour, paint and varnish industries at Hull, but most of the oil mills are stopped or on short time, owing to the extreme dullness of what is usually a dull season. At Wolverhampton also paint and varnish makers are fairly busy, and the glazed brick and tile trade is likewise about equally brisk. In the Derbyshire district papermakers are well employed, but the chemical trade is rather dull. Chemical workers about Bristol are also slack. With curriers trade is improving. At most of the chemical works in the Swansea district trade is at a standstill, but the patent fuel works are busier.

A PONTOON DOCK FOR MANCHESTER.—The floating pontoon dock built on the Tyne to the order of the Manchester Ship Canal Pontoon and Dry Dock Company entered the canal on Thursday last week, and on Sunday reached Mode Wheel, where it is now in position. The pontoon dock is 270ft. long by 63ft. wide.

MORE DEATHS FROM MINERAL OIL.—At Maidenhead, last week, a woman named Mary Piper, housekeeper to a tradesman, was burnt to death through blowing down the chimney of a paraffin lamp, which exploded. At Westminster also a mineral-oil lamp was accidentally upset in the room of a lodger named Jane Cheriton, aged 68, and she was so much burnt that she expired a few hours later in Westminster Hospital.

CHEMICAL TRADE AND THE U.S.A. TARIFF.—Inquiries among the manufacturers of St. Helens have elicited the opinion that though the glass trade will not benefit, at all events the chemical trade will benefit by the new tariff, and a considerable revival therein is anticipated, especially in soda, the duty on which is reduced from £5. to £2. 10s. The Widnes chemical manufacturers express like opinions. The local manager of the United Alkali Company does not expect the improvement immediately. He looks for the advantage to show itself gradually, and not much before the end of the year. About 600 men have been stopped of late in the alkali works of Widnes (about 10 per cent. of the whole), and most of them employed are working half-time. It is hoped that before long work will be found for all hands.

SADLER'S SMOKE PREVENTER.

THE names of Smoke Preventers are legion, and they are often as worthless as they are plentiful. Such is also not infrequently proved to be true. There are one or two points, however, about the following apparatus which are worthy of a passing remark. Though the principle is almost as old as the hills, it has been applied only with limited success in the past.

The apparatus described herewith is simple. The inevitable laxity and forgetfulness of stokers matters not, as they cannot fire up or rake without putting the preventer into operation, and when once set it can be put under lock and key by having a suitable tap at H. Tampering is thus prevented.

It has started well, whatever it may eventually come to, since it does its work, when operated solely by those who are not interested in its successful working; but are on the contrary on the lookout for shortcomings. Should it continue to work as well as it does now, we may have something more to say about it, but as things are at present the following description is sufficient:—

The invention is designed to provide apparatus whereby a jet of steam may be injected into the boiler furnace for a regulated interval of time after each time the door is opened. It may be applied to stationary, marine, or other boilers.

It consists essentially in the application to the steam boiler furnace of a steam pipe to inject a jet of steam, and regulating and controlling apparatus operated by the opening and closing of the fire doors connected to each door and constructed with a hydraulic piston or ram which controls the steam valve, the water admission valve being opened and closed as the door is opened and closed.

The invention will be fully understood by reference to the accompanying drawings, in which, as an example, it is shown applied to a Lancashire boiler.

The jet of steam is conveyed to the furnaces by the steam pipes A A¹ (Fig. 2), one of which passes underneath the fire bars B in each of the fire boxes E (Fig. 1). The pipes are provided with copper nozzles *a* of fan shape to spread out or distribute the jet of steam issuing therefrom in the form of a spray. In each furnace the nozzle *a* is placed in a space formed between the two bridges C, C¹ through which heated air can also pass into the furnace. The furnace bridges C C¹ are double built of brick upon a cast iron facing *c*. The space between them is fitted with a valve or damper D above the steam nozzle *a* closed by its own weight and to be opened by the force of the steam jet impinging upon it. The jet of steam as it issues from the nozzle *a* strikes the projecting brick to break it up into spray before reaching the furnace.

The steam as it issues from the nozzle induces a current of fresh air to pass up the space between the bridges, and commingling with the steam promotes complete combustion in the furnace and prevents any dense smoke passing away to the chimney.

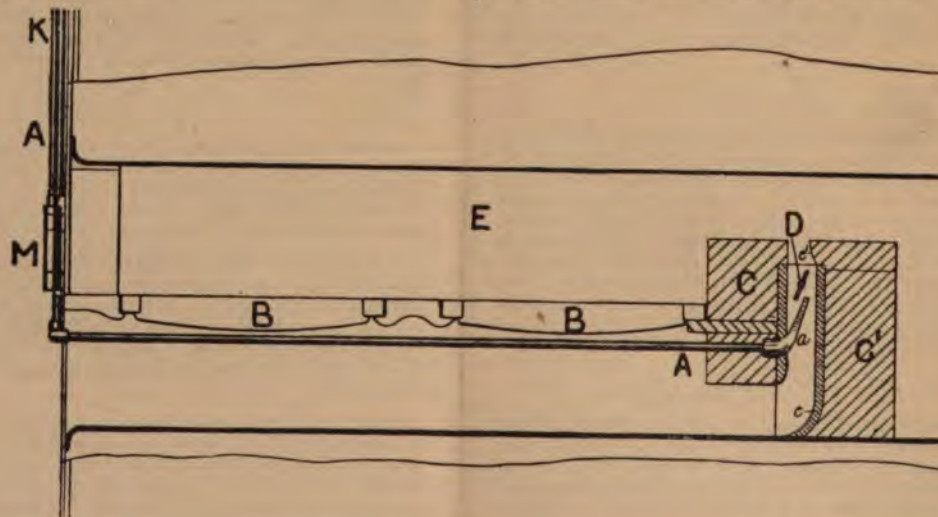


FIG. 1.

The admission of steam to the furnaces through the pipes A A¹ is regulated or controlled to take place only when the fire doors are open and for a desired length of time after they have been closed.

On the top of the boiler two or more steam valves F F¹ are placed, attached to the steam pipes A A¹ by which the steam is admitted to

shut off from the pipes A A¹. Adjacent to each of these valves is a controlling valve or appliance G G¹ to open and close the valves. This appliance consists of a hydraulic cylinder with a hollow piston capable of moving to and fro. The piston consists of a hollow brass tube working in a bored cylinder projecting from one end of which is the connecting rod. The top of the

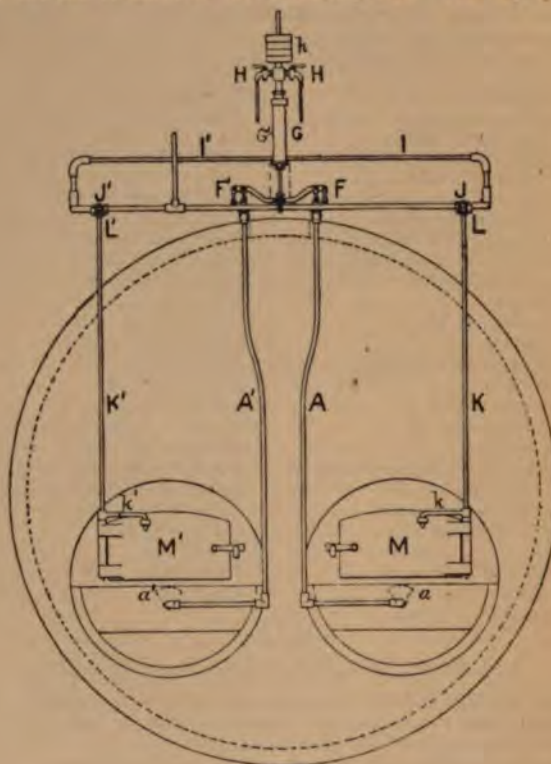


FIG. 2.

piston is weighted and to it is attached a let off or drip tap H by which the hollow piston can be emptied. The cylinder is provided with small stuffing boxes at both ends to prevent the escape of the water and the connecting rod is attached to the steam admission valve F. When water is admitted into the cylinder the hollow piston is forced up and carrying with it the connecting rod, the steam valve F is opened and

steam admitted to the pipe A and allowed to blow through the nozzle *a* into the furnace. When the water supply is shut off the piston is forced down again by the weights *h* and the steam valve shut, the water in the piston escaping through the tap H. The duration of the discharge of steam by the jet in the furnace can be regulated by the tap H by

allowing the water to flow either quickly or slowly from the piston.

The water is supplied to the controlling apparatus G G¹ by means of the pipes I I¹ fitted with piston or other valves J J¹, and the opening and closing of these valves is controlled by the furnace doors M M¹, the valves opening with the doors and closing with them. Vertical shafts K K¹ are connected with the doors being pivoted at the bottom end on the hinge pin of the fire box doors, and attached to the door by links so that as the doors are opened or closed the shafts move with them part of a revolution. On the top end of each of the vertical shafts K K¹ is fitted a small disc crank L L¹, which rotates backwards and forwards with its shaft. The water valves J J¹ in the pipes I I¹ are connected by the connecting rods with the crank discs L L¹, and each time these are moved by the opening of the doors the valves are opened, and when moved in the reverse direction by the closing of the doors the valves are closed.

In operation the opening of the furnace door M rotates the vertical shaft K and crank disc L opening the water valve J and allowing water to flow through the pipe I into the cylinder, forcing up the piston, and with it the connecting rod or link, thereby opening the steam valve F in the steam pipe A. Steam is thereby admitted through the pipe A to the nozzle a and a jet is blown into the furnace so long as the valve F remains open, the steam as it is blown through, opening the damper D. The closing of the furnace door operates the vertical shaft and disc in the reverse direction, closing the water valve J and cutting off the supply of water to the apparatus G. The weights h then force down the piston which gradually descends, the water in the cylinder trickling out through the tap H. As soon as the piston falls to the bottom of the cylinder the steam valve is closed and the steam jet stopped. The length of time the steam jet continues in action after the closing of the furnace door is adjusted by the opening or closing of the drip tap H to allow the water to flow out faster or slower.

AN ANTIDOTE FOR AFTER-DAMP.

ONE of the most practical and useful papers read at the recent meeting of the British Association was that of Dr. J. S. Haldane on "The Causes and Prevention of Death by Suffocation in Mines."

At the outset of his paper, Dr. Haldane states that, according to his opinion, it is not at all generally realised how large a proportion of the men killed in a colliery explosion die from suffocation, and proceeded to give an account of the various irrespirable gases, or "damps," which are found in mines, and which are the causes of these deaths from suffocation. Fire-damp, as is well-known, consists of marsh gas usually mixed with a little air, and a little nitrogen and carbon dioxide in excess of that due to the air. The physiological properties of marsh gas are similar to those of nitrogen or hydrogen. Fire-damp is thus not a poison, but only a diluent to oxygen, and probably can only cause suffocation when it has less than 30 or 40 per cent. of air or 7 per cent. of oxygen mixed with it. Black-damp, another suffocating gas found in mines, is usually said to be mostly carbon dioxide, but Dr. Haldane thinks there is no evidence for this, and that when undiluted it is chiefly nitrogen, seldom containing more than 20 per cent. of carbon dioxide. Choke-damp is apparently another name for black-damp, though it is sometimes used to designate after-damp. Black-damp, or choke-damp, therefore, differs from air in the fact that it contains a few per cents more carbon dioxide, and a few per cents less of oxygen, the diminution of oxygen being, however, more marked than the increase of carbon dioxide. How is such air dangerous? What is the effect of increasing the carbon dioxide percentage in air; and what is the effect of diminishing the oxygen percentage? Dr. Haldane, with Dr. Lorrain Smith, undertook an investigation of the subject a short time ago. They found for carbon dioxide that at about 3 per cent. (as had formerly been found by Hermans) the respirations begin to be first appreciably increased in number and volume. At 5 per cent. this increase is quite evident. The panting increases as the percentage of carbon dioxide increases; and at about 10 or 11 per cent. is very violent, and usually accompanied by frontal headache, but no other very marked effect. At 18 per cent. there is confusion of mind after two minutes, as well as very violent panting and distress, which comes on in a few seconds. These results were about the same whatever the percentage of oxygen, provided that not less than about 10 per cent. were present. For oxygen they found that a diminution of 8 or 9 per cent. made hardly any appreciable difference upon their breathing or in any other evident way. Beyond this there was some increase in the depth and frequency of the respirations, but not nearly of so marked a kind as in the case of air containing a correspondingly increased proportion of carbon dioxide. The person breathing air poor in oxygen may even get perfectly blue and corpse-like before he notices any distress. The dangerous percentage of oxygen is quite suddenly reached; and the first noticeable symptom may be loss of power in the limbs, and loss of one or more of the senses. A few breaths of air very poor in oxygen are sufficient to produce insensibility. Eight or nine breaths of

air containing only 2 per cent. of oxygen caused Dr. Lorrain Smith to fall back senseless without having felt any distinct previous distress. Dr. Haldane emphasized the point that when the danger is from increase in the carbon dioxide percentage there is warning; when the danger is from deficiency of oxygen there may be little or no warning before the limbs and senses are paralysed. The danger from choke-damp and black-damp seems to be of this sudden and dangerous kind. In the case of miners the lamp which they carry will, fortunately, give early warning of their danger, and keep them from walking into choke-damp. An atmosphere in which the oxygen is diminished only about 3 per cent. will extinguish an ordinary light, whereas a diminution of 11 per cent. or more must be reached before there is any danger to life from deficiency of oxygen. White-damp is another mixture of gases found in mines. The distinguishing character of white-damp is that it may have fatal effects on a man and yet not extinguish a lamp. For this reason it is much feared. As to where it comes from and what it is, there is the usual lack of satisfactory information. One point, however, which seems to be clear is that it may originate from blasting with powder. Now, analysis shows that there are two intensely poisonous gases in the products of a gunpowder explosion—namely, carbon monoxide and sulphuretted hydrogen. Moreover, the gases from "mining" powder, which is a cheap powder containing a low percentage of nitre, contain far more carbon monoxide and sulphuretted hydrogen than the gases of other powders. Carbon monoxide is a positive poison, and may produce death when present in the proportion of about 0.25 per cent. in air. Sulphuretted hydrogen is still more deadly in its action. One-twentieth (0.5) per cent. has been shown to produce marked symptoms of poisoning in man; and one-tenth per cent. would almost certainly produce death if breathed for a short time. Perhaps the most important of the suffocating damps found in mines is after-damp, the mixture of gases which results from an explosion of fire-damp or coal-dust, or both, with air. After-damp, if not too much diluted, extinguishes a lamp, and causes death by suffocation. It is described in the evidence of Mr. Dickinson before the 1879 Commission as having a "pungent, gaseous taste," and an irritating action on the eyes, and producing a feeling of *malaise* and torpor, which is a warning of imminent danger. Those who get too far into it lose the power over their legs, fall down, and are suffocated while in this helpless condition. Dr. Haldane has given a lot of attention to the composition of this gas, with the result that he has been led to dismiss the supposition that it consists chiefly of carbon dioxide, his conviction being that the usual cause of death from after-damp is simply want of oxygen. Products such as sulphuretted hydrogen or carbon monoxide can only be produced when the oxygen is used up; and when this is the case it does not much matter whether a little carbon monoxide or sulphuretted hydrogen are present or not. That relatively large quantities of these gases are not present can be confidently inferred from the fact that after-damp does not burn when mixed with air. If there were much carbonic oxide or sulphuretted hydrogen there would certainly also be a large amount of free hydrogen, and other explosive gases, which would burn in spite of their dilution with nitrogen. The practical question arising from these investigations is, can anything be done for the men who are in the pit during an explosion or fire to prevent the loss of their lives? It seemed pretty clear to Dr. Haldane that if means could be provided to enable the men in a pit to remain alive in after-damp for even a very short time, such as twenty minutes, they might all simply walk out to the neighbourhood of the shafts, where there is usually abundance of fresh air within a very few minutes. The direct way may be blocked by falls, but there is generally some way open, for the return air-ways at any rate usually escape the explosion. For a man to live in after-damp he must first be supplied with oxygen. To keep him alive for an hour while exerting himself in making his escape would probably require about 60 or 70 litres of oxygen. This quantity can be compressed into a steel bottle of half-litre, or less than a pint, capacity. The oxygen so compressed would cost about 6d., and can be readily obtained. An apparatus for economically breathing this oxygen and for keeping out any poisonous substances present in after-damp would also be necessary. Dr. Haldane gives a description of such an apparatus designed by himself.

ADVERTISEMENTS IN GOVERNMENT PUBLICATIONS.—Lord Rosebery has received a memorial from the Newspaper Society against the system of inserting advertisements in Government publications. It points out that the practice is contrary to the universally recognised principle, that a Government should not enter into competition with private trade enterprise, and that the trade newspapers issued by the public departments already enjoy great advantages over ordinary organs of the trade through the rental, cost of collecting news, &c., being thrown upon the public exchequer; and that those unfair advantages should not be aggravated by canvassing in the name of Her Majesty for all kinds of miscellaneous advertisements to the prejudice of legitimate independent journals with which the Government publications compete.

ANSWERS TO CORRESPONDENTS.

- J. F.—By letter.
 T. V.—They are in progress.
 A. M. (Lille).—We have sent you particulars which will remove your difficulty, we think.
 H. AND R.—They are of no use to us.
 F. M. L.—Our letter covers the matter. The discrepancy is due to the difference in the cost of making a pure article direct, and in making a crude product, purified at the expense of much time and trouble.
 J. S.—They will be sent on as early as possible.
 H. S.—We trust the names will answer your purpose.
 X.—There is no cause for doing so at present.
 QUICKLY.—It is an old grievance. There are much more serious difficulties however to be removed ere its turn for consideration can be reached.

Reports of Companies.

BRUNNER MOND AND CO., LIMITED.

The twenty-seventh half-yearly ordinary general meeting of the shareholders of Brunner, Mond, and Co., Limited, was held on Tuesday, at the Law-rooms, Cook-street, Liverpool, Mr. John T. Brunner M.P., chairman of the board of directors, presided, and there was a large attendance of shareholders.

The directors reported that the balance sheet and profit and loss account, certified by the auditors, showed a balance to the credit of profit and loss account on the working of the half-year ended the 30th June, 1894, of £150,714. 8s., which, with the amount of £81,929. 9s. 7d. brought forward from the previous half-year, made a total of £232,643. 17s. 7d. The directors proposed to deal with the above balance as follows:—Dividend on the preference capital, at 7 per cent. per annum, £15,257. 16s. 3d.; dividend on the ordinary capital, at 30 per cent. per annum, £124,793. 12s. 6d.; amount to be written off patents account, £2,500; balance to be carried forward, £90,092. 8s. 10d.—£232,643. 17s. 7d. The directors have made a call (final) of £3. per share on the ordinary shares, now £8 10s. paid (£1. 10s. to rank for dividend and £1. 10s. as balance of premium), payable on the 1st October, 1894. The directors resolved on the 4th April, 1894, to adopt the Forged Transfers Acts, 1891 and 1892.

The Chairman moved that the report and balance sheet be adopted, and the dividend as therein recommended be declared. After having explained that the dividend warrants would be posted two days later than usual in consequence the increased number of shareholders, and having also alluded to one or two other matters of detail, the Chairman stated that the directors had made some addition to the freehold land of the company, besides considerable additions to the alkali works. They were building works at Silvertown on the Thames, and he was happy to say that although they were not completed they were successfully started a few weeks ago. They would have to spend more money on those works. Their intention was to double the present capacity, so they would have to look forward to a further capital expenditure on that account. An amount of £2,000 had been written off the freehold land, but a similar thing had occurred before. A few years ago they bought a small quantity of land in the neighbourhood of their works at Winnington at a price which they considered to be above its intrinsic value, and on that account they wrote off a certain sum. On the present occasion also they had bought land for the protection of the company at what they regarded as a fancy price, and they had again written off £2,000. The fact that they had on two occasions taken this course ought to be to the shareholders an indication of the spirit in which the capital account had been worked. If ever a body of shareholders ought to be content with the efforts of those to whom their money had been entrusted those whom he was addressing occupied that position (Hear, hear.) The market price of their products had fallen in the last twelve or eighteen months to an enormous extent, and it must be perfectly clear that something had been done to meet that great fall. The staff also had worked most admirably. The income tax was continually growing, and he warned them that it would be larger next time.

Mr. C. J. Galloway seconded the motion, which was carried.

Ald. James Webster moved, "That the directors other than the managing directors be paid the sum of £500 for their services during the half-year ending the 30th June, 1894." He said the shareholders were delighted to have an opportunity of acknowledging the great services rendered to them by the directors.

Mr. Geo. Jones, in seconding the motion, remarked that the highest praise was due to the directors for their able management of the company during the recent trying times.

The motion was adopted.

Messrs. T. W. Read and Co., chartered accountants, were re-appointed auditors; and on the motion of Mr. Ludwig Mond, seconded by the Chairman, a cordial vote of thanks was tendered to the staff.

A similar compliment to the chairman terminated the proceedings.

LONDON AND MANCHESTER PLATE GLASS COMPANY, LIMITED.

On Tuesday last the annual general meeting of the shareholders of this Company, whose extensive works are situated at Sutton and Ravenhead, St. Helens, was held in Manchester under the presidency of Mr. Hawkins, the chairman of the company. The result of the meeting was awaited with great interest in St. Helens, inasmuch as on Wednesday afternoon last week notices were posted at both works of the company stating that owing to the depression in their trade the directors had to intimate that on and after Thursday, the 23rd inst., all persons employed by the company would be retained from day to day until further notice. As the works employ about 1,200 men naturally great anxiety is felt in the borough concerning their future. The balance sheet was produced, which showed that during the past twelve months the company had lost £63,000, and during the last three years £140,000.

The Chairman said it was a matter of deep regret to the directors and himself to have to submit such a balance-sheet, but they had done their best, and they had now reached the end of their tether. They had no cash and no credit, and it was for the shareholders to say whether they would close the works and go into liquidation, or whether they would invest more capital in the concern. The state of affairs to which they were reduced was due to the fact that plate glass had gone down to such a low ebb that there was no margin of profit. It was also due to the fact that wages in this country were much higher and the hours of work much fewer than on the Continent.

The shareholders were evidently not pleased with the report, and the chairman was subjected to considerable heckling. In answer to questions, he said the directors had not thought of any scheme for the utilisation of the works. They left the matter entirely with the shareholders.

Mr. Binney, the manager, said the works were in excellent order, and intimated that the company had not fared well since conceding the demands of the men for increased wages some four or five years ago. He admitted now that that was a mistake, and said it would have been better to have closed the works.

Some of the St. Helens shareholders said it would be a great calamity to St. Helens if the works were closed, and hoped that efforts would be made to keep them going.

It was ultimately arranged that the directors should call an extraordinary meeting of the shareholders to take into consideration the affairs of the company, and come to some definite arrangement. The £15. shares of the company, which some years ago brought as much as £47., were recently quoted in Manchester at 10s.

Later advice states that the works will be closed on Tuesday next.

THE ACTION OF LIGHT ON ORGANIC COLOURS.

THE Committee having this matter in hand in reporting to the Chemical Section of the British Association on their work during the past year state:—During the year a large number of wool and silk patterns, dyed with various natural and artificial orange and yellow colouring matters, have been examined with respect to their power of resisting the fading action of light. The patterns were exposed at Adel, near Leeds, in the grounds of Mr. James A. Hirst. Each dyed pattern was divided into six pieces, one of which was protected from the action of light, while the others were exposed for different periods of time. On silk the relative fastness of the various colours was, for the most part, the same as on wool; the differences being unimportant. Orange and yellow patterns give a comparatively large number of satisfactorily permanent colours. In the more or less fugitive class were to be found all the basic colours, all the nitro-phenols, with the exception of palatine orange, and all the bright yellows derived from the natural colouring matters by means of aluminium and tin mordants, with the exception of those obtained from weld. Comparatively few azo colours were met with in this group. By far the greatest number of yellows, ranging from "moderately fast" to "very fast," were to be found among the azo colours. Specially important were those in which salicylic acid was a constituent element, since not only did this impart to the colour the power of forming more or less stable lakes with chromium and aluminium mordants, but it appeared frequently to give the colours the quality of fastness to light, even when no mordant was applied. The colours obtained with aluminium were practically as fast as those fixed with chromium, since the first-named mordant gave much brighter and purer yellows. The tin mordant, so useful in the production of the most brilliant orange and yellow colours obtainable from the natural colouring matters, seemed, however, to be of little or no advantage in connection with most of these azo-mordant colours, no doubt because they were susceptible to the reducing action of the mordant usually employed for wool—viz., stannous chloride. Very interesting in point of fastness to light were the azoxy colours, and although unfortunately apt to dye wool somewhat irregularly, giving speckled-looking colours, they were admirably adapted for silk and cotton. Another interesting little group was that

which includes tartrazin, a colour not only noteworthy for its fastness to light, but also because of its brilliancy and purity. The fastness of alizarin orange was worthy of special mention, for it was probably greater even than that exhibited by most other colours of the alizarin group, and it showed the peculiar darkening action exerted by the light, probably in consequence of the presence of the nitro group. It was remarkable how few really fast yellows were derived from the natural colouring matters, and these were chiefly the olive yellows obtained with chromium mordant. The only fast, and at the same time bright, natural yellows were those derived from weld, and since this dye stuff was now of little general importance to the dyer its cultivation had become extremely limited, and was gradually being given up. It was fortunate, therefore, that science had been able to replace it by efficient substitutes, so far, at least, as permanency towards light was concerned. The experiments had already abundantly proved that the popular opinion that the coal-tar dye-stuffs included only such as yielded more or less fugitive colours was entirely false; indeed, it was perfectly safe to assert that coal-tar was the source from which the greatest number of colours fast to light were derived at the present time, and this seemed to be specially true of the red and yellow colours.

Trade Notes.

RE-STARTING A SUGAR REFINERY.—Berryards Sugar Refinery, Greenock, will resume melting operations, making the fourth refinery at present working in the town.

THE WEAVER TOLLS.—The Provisional Orders Bill, relating to the tolls and charges on the Weaver given in the *Journal*, page 84, has passed through committee, and now awaits the Royal assent.

DEATH BY SUFFOCATION.—A miner was suffocated by gas at the Crigglestone Colliery, Wakefield, on Wednesday. Two others had a narrow escape in attempting a rescue. It is in cases of this nature that Dr. Haldane's new invention might prove serviceable.

THE ROBURITE EXPLOSIVES COMPANY, LIMITED.—The directors of this company have declared an interim dividend on the preference capital of the Company at the rate of 5 per cent, per annum for the half-year ended June 30.

REVIVAL IN THE WELSH TINPLATE TRADE.—The modification in the American tariff is creating a considerable amount of interest in the South Wales tinplate trade. It is stated that many of the works now closed will be immediately opened, and that several large manufacturers urge the opening of new markets.

ELECTROLYTIC BLEACH IN GERMANY.—It is stated that the German Solvay Company of Bernburg has prepared plans for the establishment of works at Osternienburg for the electrolytical production of caustic potash, chlorine, and chlorate. Electricity has recently been adopted as the motive power at the bleach works of Messrs. Kefenstein at Greiffenberg.

THOMAS PARKER, LIMITED.—The statutory meeting of Thomas Parker, Limited, was held last week, at the offices of the company, Wolverhampton. Mr. T. C. Mander presided, and reported that the purchase of the Eickemeyer patents had been completed, that the legal proceedings commenced by the Electric Construction Company remained as they were, but that his board was considering the question of granting a licence to the Electric Construction Company for the use of these patents on terms to be agreed. The erection of the works was rapidly approaching completion.

PYRITES via THE SHIP CANAL.—A case of speedy despatch was instanced last week at Runcorn. The s.s. *Gwillian Thomas* from Huelva, containing 1,450 tons of pyrites for Davis's Chlorine Processes Limited, Lostock Gralam, and another firm in that district, landed at the Runcorn lay-by at 3-30 on Friday afternoon. Within half an hour discharging operations were commenced, and at 6 p.m. on Saturday they were finished, so that in 26 hours the large cargo had been transferred into flats. The speed with which the work was performed is spoken of as beating the record.

SCOTCH SANITARY CONGRESS.—The Congress of the Sanitary Association of Scotland opened in Glasgow on Thursday. Bailie Crawford, the president, said they were not merely to get rid of offensive nuisances and secure good water and drainage, but they were to encourage people to demand space and more room to move about and live in. There would be a rapid diminution in Scotland of the graver forms of zymotic disease as the Compulsory Notification Act and isolation hospitals came in operation.

THE WASTE OF COKE OVEN GASES IN ENGLAND.—At the Thursday meeting of the Iron and Steel Institute, held at Brussels, a paper written by the late R. de Soldenhoff was read, in which he asserted that the losses in waste products in gas ovens in this country amounted to £4,262,500. He assumed that 100,000 Lancashire boilers were in operation in connection with coke ovens. The utilised value of the gases did not exceed £2,500,000, and the value wasted was £3,500,000.

FATALITY AT A BLEACH WORKS.—A fatal accident occurred on Thursday morning, at the bleach works of Mr. J. Longworth, Horwich, by which a "squeezer" minder, named James Dickinson, seventy-eight years of age, lost his life. Dickinson went to put some resin on the strap of a revolving pulley, when by some means he was caught by the strap and dragged between the pulley and the flooring. He was found a short time after by a boy, his head being severely crushed and the arms and shoulder injured. He was, of course, quite dead, and it was with difficulty he was extricated.

REPORT ON THE ALBION COLLIERY EXPLOSION.—Prof. Dixon has presented his report on the recent explosion at Pontypridd. The Professor, who made his examination eleven days after the occurrence, says the explosion seems to be strikingly similar to those at Seaham, the flames having traversed nearly all the main roads on both sides of the shaft. He was quite satisfied that sufficient fine dry coal dust was lying along the parts penetrated to feed the flames, and it was unlikely that gas or fire damp could have been present in sufficient quantity to account for the disaster. There could, in his opinion, be no question that it was a pure dust explosion, and though he could not speak with certainty as to the origin, he concluded that blasting with dynamite ignited the coal dust in the first instance, and also raised a sufficient cloud to feed the flames. He could not learn whether the dust in the region of the blasting operations had been watered.

A JUBILEE IN THE CHEMICAL TRADE.—The jubilee of the Hapton Chemical Works, near Accrington, was celebrated on Saturday last. It is just fifty years since Mr. John Riley commenced the business of a chemical manufacturer at Hapton and laid the foundation of the extensive works to-day controlled by Messrs. Riley and Sons. In celebration of their jubilee the firm generously provided their workpeople and wives and sweethearts with a free trip to Blackpool, besides paying them their wages for the day. The works were gaily decorated, and the village wore quite a festive appearance early on Saturday morning. The workpeople and their friends numbering 500 were conveyed by special train to Blackpool, starting at 6-30 a.m., and by 8-40 they were in Blackpool. On arriving the party separated, and on re-assembling in the evening, all expressed themselves delighted with their trip. Consequent upon a mishap on the railway, the party did not commence the return journey until 11-30, and it was 1-40 before Hapton was reached. The workpeople were accompanied by Mr. Fred Riley, and the heads of the various departments.

THE WATER SUPPLY OF LARGE TOWNS.—The general fact that by magisterial ruling payment for household water does not include bath water deserves general attention. We make no doubt that Mr. Denman is right in his law, in fact the companies act upon it, and by drawing a hard and fast line between the ordinary water supply and that used for ablution are the worst possible enemies of cleanliness and sanitation. They rely upon their rights, of course, and they have established monopolies which have to be respected; but if Parliament had been half as busy during the last eight or ten years with the real wants and necessities of the people at large as it has been with fads that come to nothing, and foolish efforts to set class against class, this question of the water supply to the people generally would not stand where it does to-day. And when the Legislature gets back, as it may be hoped some day it will, to wholesome law-making for the whole community, such a case as that to which we allude will seem a relic of barbarism. It will be hard for posterity to believe that in a day when we called ourselves civilised water companies were allowed to draw a distinction between the amount of liquid supplied to wash the hands and face or boil a pudding or scrub a floor and that allowed for the washing of the body.—*Daily Telegraph*

A PAPER MAKER'S FAILURE.—On Friday last week, a first meeting was held in the London Bankruptcy Court in the affairs of Herbert Spicer. The debtor, described as of 165, Queen Victoria-street, has stated that for twelve years prior to 1888 he carried on business as a paper manufacturer at Godalming in partnership with two brothers, and that in 1888 the business was converted into a company with limited liability, of which he became managing director at a remuneration of £1,000. per annum, and he stated that he was holding this position at the date of the receiving order. In 1890 the debtor was also appointed managing director of another limited liability company, formed to acquire a concession obtained by him for the establishment of paper works in Turkey, and he states that he held this appointment until November 25th, 1891, when he resigned in consequence of differences with the directors. The debtor attributes his insolvency to the subsequent failure of this company and to liability on bills drawn by him as managing director on certain shareholders in respect of calls on shares subscribed for by them. The statement of affairs discloses aggregate liabilities £54,952., of which £38,433. is expected to rank, and assets £80. The debtor made no proposal, and it was stated that he had already been adjudged bankrupt. He was still receiving a salary of £1,000 a year, but could not say how long the engagement would last. No trustee was nominated, and the debtor's affairs will be wound up in bankruptcy, the Official Receiver acting as trustee.

THE GAS SUPPLY OF LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended August 9th, 1894, has averaged 13.62 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia	Carbonic Acid.	
	July. 1894.	Aug. 1894.			Weight.	Volume.
Meadow Lane....	18, 20, 25.	2, 9.	19.77	0.84	48.90	.06
New Wortley	19, 23, 24.	1, 8.	15.78	0.97	57.05	.07
York Street	21, 26, 31.	7.	10.29	1.09	48.90	.06
Average at Works	..	..	13.62	0.89	48.90	.06
Average at East Parade	..	..	14.09	1.00	48.90	.06

During the month the average illuminating power of the Leeds Gas tested at 16, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 hole, 17.7; standard batwing, 18.5; Sugg's illuminating power meter, 17.9.

NOTICES.

LONDON AGENTS

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"THE CHEMICAL TRADE JOURNAL"

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On usual trade terms. Paternoster Row, E.C.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products generally are quiet. Benzols continue without change at 11d. and 1s. respectively. There is no change in the price of carbolic acid, either for 60% crude or 40% crystals. Crude naphtha is quoted 5d., and solvent naphtha is also unaltered in price at 1s. 3d. Pitch, however, is an exception, the market being strong and the demand active, while full prices are obtainable, namely, 33s. 6d. to 34s., f.o.b. East Coast.

There is very little doing in sulphate of ammonia, while the prospect of business from America is small, owing to the new tariff. In consequence prices are rather easier. Beckton £13. 12s. 6d., London outside makes £13. 15s., Liverpool £13. 13s. 9d., Hull £13. 12s. 6d., and Leith £13. 11s. 3d.

MISCELLANEOUS CHEMICAL MARKET.

Business has been fairly satisfactory during the past week, and there are no changes of importance to report. Bleaching powder is steady at £7. 10s. softwoods, f.o.r., and £8. hardwoods, f.o.b. Caustic soda sells freely, and prices have a firmer tendency; current quotations are as follows:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d.

per ton, 10-ton lots and upwards. Soda ash dull, and prices weak. Soda crystals are unchanged. Nitrate of soda continues firm at £9. to £9. 5s., according to quality. Chlorate of potash weak at 6½d. per lb., soda 8d. per lb. Sulphate of copper quiet at £14. 10s. per ton, f.o.b. Acetates generally are dull, with but little inquiry. Foreign white sugar of lead is still offered at £24. 10s. per ton. Acetate of soda has had another fall, and now stands at £14. Brown acetate of lime £6. per ton, grey £10. per ton. White powdered arsenic has improved in demand, and is selling more readily, price may be taken at £13. 15s. to £13. 17s. 6d. at Garston. Ammonia salts are moving briskly: grey muriate £23. 10s. per ton, white £26. Sal-ammoniac 39s. and 37s. per cwt. for firsts and seconds respectively. Oxalic acid 3½d. per lb. Carbonate and caustic potash continue in good request, and prices are firm. Yellow prussiate of potash finds a ready market at 10½d. per lb. Soda 9d. Carbolic acids are firmly held, but the business actually passing is not large. Sulphocyanides in moderate demand, prices are: barium 5d., and ammonium 7½d. per lb.

REPORT ON MANURE MATERIAL.

There is a moderate amount of business passing, but there is not much life in the market, and prices have not altered materially. Sales of 75/80% Florida rock have been made at 8½d. c.i.f. to the Baltic, and at 8½d. to North Sea ports; 7¾d. asked c.i.f. to good United Kingdom ports, 1895 shipment. The position of South Carolina and Peace River rocks is unchanged. There is inquiry for handy cargoes of River Plate bones, and for these £4. 12s. 6d. would no doubt be paid, but for those of large size £4. 11s. 3d. is full value. After sales of East India bone meal at £4. 12s. 6d. per ton, autumn shipment, the price has been advanced to £4. 15s., at which sales of fine quality have been made. Ordinary Bombay hangs fire at £4. 15s. £4. 15s. is also asked for crushed Kurrachee bones, but £4. 13s. 9d. is probably the nearest value. Nitrate of soda remains firm in all positions. On pot, stocks being in few hands, the price has been advanced to 9s. for ordinary quality, and to 9s. 1½d. for refined. Due cargoes are worth about 9s. per cwt., July-August sailings 9s. to 9s. 1½d., according to size and test, and later sailings 9s. 1½d. to 9s. 3d. per cwt. Home-prepared dried blood is worth 10s. 9d. to 11s. per unit, according to position of works, delivered to rails.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, quiet: Scotch warrants closed at 43s. 4½d., Middlesbrough 36s. 5d. cash, and hematite 44s. 6d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £40. 8s. 9d. to £40. 13s. 9d. cash, and £40. 17s. 6d. to £41. 2s. 6d. three months. Tin, steady: Straits closed at £70. 15s. to £71. 5s. cash, and £71. 5s. to £71. 15s. three months; Australian, £71. 5s.; English ingots, £73. Lead, dearer: Spanish, £10. 1s. 3d. to £10. 2s. 6d.; English, £10. 2s. 6d. to £10. 5s. Silesian Spelter, ordinary, £15. 15s. Nickel, 1s. 6d. Antimony, £32. Quicksilver: first hands, £6. 5s.; second hands, £6. 4s. 6d. Copper shares, easier: Cape, 1½ to 1½; Copiapo, 2 to 2½; Libiola, 3¼ to 3½; Mason and Barry, 2½ to 2½; Rio Tinto, 14½ to 15; Tharsis, 4½ to 4½.

GLASGOW, WEDNESDAY.—Market firm, with fair business. Scotch done at 43s. 2d. and 43s. 4½d. cash, also at 43s. 4½d. and 43s. 6½d. one month; closing with buyers at 43s. 4½d. cash, sellers ask 43s. 5d. Cleveland closes with buyers at 36s. 5d. cash, sellers ask 36s. 6d. Cumberland hematite closes with buyers at 44s. 6d. cash, sellers ask ½d. higher. Middlesbrough hematite closes with buyers at 43s. 3d. cash, sellers ask 43s. 4½d. Copper done at £40. 16s. three months.

WOLVERHAMPTON, WEDNESDAY.—The market showed more buoyancy than for some time past, and in view of brighter prospects prices had a tendency to advance. For manufactured iron inquiries were greater, and galvanized sheets were especially active. Doubles were quoted £9. 12s. 6d. to £9. 15s., delivered Liverpool, and black double £6. 10s. Stamping sheets were £8, hoop and thin strip £6. 10s.; tank plates £7, and common bars £5. 10s. upward. Pig iron steady; best native 55s. to 57s., and common 38s. per ton. North-amptons 41s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has gradually hardened during the week, and is now firm, and selling at £22. 15s. to £23. for Lagos, spot and forward. Accra, £21. 5s. Olive is picking up, the demand being better; holders remain firm, however, and prices are rising, so that sales are

somewhat limited. Linseed keeps steady, Liverpool makes in export casks being quoted still at 21s. 9d. to 22s. 6d. Cottonseed is scarce, with little offering, Liverpool refined remaining steady at 21s to 21s. 3d. per cwt. Castor oil is steady, with a fairly good market for good seconds Calcutta at 2½d. to 2¾d. First pressure French is slightly easier, selling at 2d. per lb. Tallow is in better demand. North American shows an advance of 6d. on last week. South American is quoted 26s. to 28s., and Australian 24s to 26s. per cwt. Prices generally seem inclined to improve. There is little doing in resin, quotation for common still being 3s. 7½d. Spirits of turpentine are weaker to-day, and now offer at 22s. per cwt. Petroleum is quietly steady at 4d. to 5¼d. for American, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The prices of oils have not altered materially during the week, nothing having happened to change the surface price of any of these articles. The stocks of seed are comparatively light, and most crushers are bound to limit operations until such opportunities present themselves for reducing their present very heavy stocks of cakes, for after all the cake and oil trades are so much akin that the prices and demand for one article regulate the market price of the other. The import of linseed during the week has been 22,232 qrs. from various Black Sea and Indian ports; of cottonseed there have been no imports; of rapeseed there have arrived 3,984 qrs. from Taganrog, and 1,655 qrs. from Odessa. Linseed oil is steady at 19s. 9d. naked spot; month offers at 19s. 7½d.; September-December is quoted at 18s. 9d., and January-April, 18s. 7½d.; casks, 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Export for the week has been 2,160 cwt. Refined cotton oil has declined about 5s. per ton on the spot, closing steady at 18s. 9d. naked. September-October offer at 18s. 7½d.; November-April, 17s. 6d. to 17s. 7½d.; crude on the spot, 16s. 9d. naked; November-April, 15s. 9d. Export of refined for the week has been 1,440 cwt. Rape oil, very little doing, with prices unchanged. Spirits of turpentine, 22s. per cwt. Castor Oil: Holders here are asking nearly 2½d. per lb., which is certainly more than market value for first pressure. A large quantity of herring oil offering here tends to keep down the prices of cod oil, which are unchanged and in slow demand. Sod oil, £16. to £21. per ton. Soft soap, 14s. 6d. per cwt. Rosin oil from £6. 10s. per ton. Open lamp oil from 1s. 4d. per gallon. Petroleum jelly from £20. per ton.

CAKES.—In small demand, owing to harvest operations, which it is feared owing to so much rain, will leave large quantities of rough grain in competition with cakes for feeding purposes. Prices firmer. Linseed cakes, 95% pure, £6. 12s. 6d. to £6. 15s.; Russians, £6. 10s.; oil cakes, £5. 12s. 6d., to £5. 15s. Cotton cakes: Very quiet. Best makes, £4. 5s. seconds, £4. Rape cakes unchanged.

PAINTS.—Prices are unchanged.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals may be said to be a shade better, particularly bleaching powder for which there is an increased demand from Russia and the Continent. As yet manufacturers on this side have not felt any direct benefit in respect of the American Tariff Bill. Prices are as under:—

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett; soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. 5s. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening,

£3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt unaltered at 10s. per ton, f.o.b. Tees.

COALS.—Continue in fair demand and prices generally fully maintained. Quotations to-day are as under:—Best Northumbrian steam, 10s. 9d. to 11s. per ton; small steam, 4s. 9d. to 5s. per ton; bunker coals quiet, 7s. per ton; gas coals firm, 7s. 3d. to 7s. 6d. per ton; coke steady, 14s. to 15s. per ton.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, August 17th, 1894, state:—

Chili Charters for the past fortnight are cabled as 600 tons, making the total since 31st December last 12,950 tons, against 13,150 tons same time last year. Exchange 11¾d. Since our last report, dated 1st inst., there been a fairly good business done in G.O.B.'s and G.M.B.'s from spot to arrival, with 5½ months' prompt, and prices have advanced about 25s. per ton. Yesterday's sales were the largest during the past fortnight, amounting to about 1,500 tons, and closing at £39. 10s. cash, and £39. 17s. 6d. three months' sellers. To-day's market closes with buyers at £39. 11s. 3d. to £39. 18s. 9d. respectively. Total stocks in Liverpool, Swansea, London, and Havre are 47,653 tons, against 47,975 tons on the 1st inst., showing a decrease of 322 tons for the fortnight. The stocks include about 1,100 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 50,933 tons, against 51,293 tons on the 1st inst., showing a decrease of 360 tons. The stock of English G.M.B.'s in Liverpool remains at 2 tons. Refined and manufactured sorts are steady, quotations being:—Tough cake, £41. 5s. to £41. 15s.; best select, £41. 15s. to £42. 5s.; Indian sheets, £47.; strong sheets, £49. 10s.; and yellow metal sheets, 4¼d. per lb.

The sales of furnace material comprise:—157 tons Argentiferous copper matte, 15 tons Argentiferous Regulus, 10 tons Auriferous and Argentiferous River Plate bars, 53 tons Argentiferous Mexican bars, 78 tons Argentiferous Mexican matte, 36 tons Argentiferous Peruvian ore, 10 tons River Plate matte, and 140 tons Spanish precipitate, to arrive, all on private terms; and 6 tons Egyptian ore, at 6s. 9d. per unit.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There has been noticeable for the past few days a somewhat improved tone of inquiry, more particularly about chemicals for shipment; but this has not as yet been followed up by much increase of business carried through. Bleaching powder is on report a trifle firmer, and sulphate of copper has fallen in with some partial recovery, but these are the only instances in that way. Caustic soda and chloride of potash incline rather downwards. The expected influence on prices of the new American tariff adjustment is not so far discernible.

Makers of mineral oils and solid paraffins have hitherto kept at full production notwithstanding the continuance of the coal strike, and they are tolerably secure for yet a number of weeks to come, but of course stocks of coal are gradually becoming depleted, and the industry is not able to bear the enhanced prices of imported coal if it came to that. In the event of the strike lasting two months more some if not the whole of the works would stop. Prices of these products unchanged.

Sulphate of ammonia quite lifeless, price nominally the same as a week ago, viz, £13. 10s. to £13. 12s. 6d., Leith.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4½d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3¾d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £13. 10s. to £13. 12s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £14. 15s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.;

paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 4,781 bags.

New Companies.

Joshua Miller and Company, Limited.—CAPITAL, £3,000, in shares of £10. This Company has been formed to purchase the business carried on at Bishops Stortford, by F. N. Miller and Company, and to trade as oil cake, feeding stuffs and manure merchants.

Pneumatic Brushless Painting Machine Company, Limited.—CAPITAL £38,000, in shares of £1. each. This company has been formed to acquire the rights of Patent 10,117 of 1893 for an improved means of applying paints and varnishes to surfaces, as indicated by the title of the company.

Petroleum Products Syndicate, Limited.—CAPITAL, £10,000, in shares of £1. This Company has been formed to carry on the business of dealers, manufacturers, and refiners of petroleum and other oils. The subscribers to the memorandum of association are:—W. E. Savory, 84, Beresford-street, S.E., clerk; H. V. Powney, 9, Derby-street, King's Cross, W.C., gentleman; D. L. Whitelaw, Whittington House, E.C., gentleman; F. Hall, 203, High-road, Streatham, merchant; W. Tiveen, Clifton, Derby-road, Woodford, accountant; S. Martin, 21, Marshall-street, W., secretary; C. H. Watson, 51, Grosvenor-terrace, S.E., clerk.

T. B. Ford, Limited.—CAPITAL, £50,000, in shares of £1. each. This Company has been formed to acquire and carry on the business of paper manufacturers now carried on by the trustees of T. B. Ford, at Loudwater, Bucks. The subscribers to the memorandum of association are:—G. Van de Linde, 50, Gracechurch-street, E.C., accountant; E. Ford, Burleighfield House, Loudwater, widow; F. T. Ford, Maidenhead, esquire; E. T. H. Ford, Snakeleigh House, Loudwater, esquire; M. A. Ford, Loudwater, spinster; E. Ford, Loudwater, spinster; A. H. Ford, Loudwater, spinster.

William Gray and Sons, Limited.—CAPITAL, £40,000, in £1. shares. This Company has been formed to acquire the business now carried on by W. P. Burkinshaw, under the style of W. Gray and Sons, at Hull and Wisbech, and to trade as seed crushers, oil refiners, &c. The subscribers to the memorandum of association are:—J. Winkley, 27, High-street, Hull, merchant; F. F. Lambert, 35, High-street, Hull, merchant; T. Bailey, 25, High-street, Hull, seed crusher; O. Hillerns, 45, High-street, Hull, merchant; E. R. Harrison, 160, High-street, Hull, merchant; T. H. Bulmer, 187, High-street, Hull, seed crusher; H. W. Plimpton, High-street, Hull, merchant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Improvements in Pulverisers. T. Parker, J. D. Wright, F. F. Stuart, and A. M. Colquhoun. 15,104. August 7.
Improvements in Filters. R. Cragham D C Smith. 15,132. August 8.
Manufacture of Soap. J. O. Klimsch. 15,228. August 9.
Vulcanising and Drying Wood. C. Howard. 15,231. August 9.
Utilising the Waste Heat of Furnaces of the Open Hearth Type. C. J. Bayley, L. Roberts, and the Moor Steel and Iron Co., Ltd. 15,249. August 10.
Manufacture of White Lead. W. B. Priest. 15,251. August 10.
Purification of Sewage and Effluents from Sewage. S. Brown. 15,265. August 10.
Manufacture of White Lead. E. Van Den Hoff. 15,266. August 10.
Improvements in Diaphragms for Electrolytic Work. M. Kiliani, W. Rathenau, C. Suter, and Elektro-chemische Werke Gesellschaft mit Beschränkter Haftung. 15,276. August 10.
Apparatus for Testing the Compressibility of Wool. S. Jackson. 15,281. August 10.
Washing Naphthalene, Tar, Naphtha, and Mineral Oils. S. B. Boulton, T. B. Heywood, H. E. Boulton, and H. Fergusson. 15,290. August 10.
Fuel Economizers. J. G. Calvert. 15,249. August 10.
Manufacture of Lead Pigments. W. B. Priest. 15,317. August 11.
Process for Purifying Petroleum. J. Schrader. 15,323. August 11.
Varnishing Metal in Light Resisting Colours by means of Alizarine Colours. J. Perl and P. Herrmann. 15,327. August 11.
Obtaining Precious Metals. J. Mactear. 15,339. August 11.
Manufacture of Chemical Compounds. H. E. Newton. 15,348. August 11.
Increasing the Efficiency of Surface Condensers. E. Theisen. 15,351. August 11.
Manufacture of Antiseptic Agents. J. Y. Johnson. 15,361. August 11.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- J. T. HORSFALL and M. CHADWICK, dry and soft soap manufacturers, Halifax, under the style of Horsfall and Co.
A. SHELMEKDINE and H. RATCLIFFE, parchment paper makers, Bootle, near Liverpool, under the style of Sheldermine and Ratcliffe.
T. B. WEARE and T. B. CLIFFORD, oil, colour, varnish, and gum merchants, America Square, Crutched Friars, E.C., under the style of Weare, Clifford and Co.
T. ROWBOTTOM, W. J. SMART, G. T. SMART, and J. J. SMART, glass manufacturers, Brettle-lane, Staffordshire, under the style of Rowbottom and Co., so far as regards T. Rowbottom.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 11th.

Acetate of Lime—

U. States, 1,090 bgs. H. Wallace & Co.

Acetic Acid—

Holland, 110 pkgs. Beresford & Co.

Acetone—

Holland, 6 drs. A. & M. Zimmermann

Alkali—

France, 220 c. Arnati & Harrison

Alum—

France, 1 pkge. Mory & Co.

Aluminium—

Belgium, 5 t. Major & Field

Germany, 14 c. H. Lambert

Antimony—

Sydney, 7 t. R. K. Douglas

Antimony Ore—

Australia, 23 t. Vivian, Younger & Co.

Italy, 1 t. A. Laming & Co.

E. Indies, 45 t. Pillow, Jones & Co.

Sydney, 57 t. R. K. Douglas

Aniline—

France, 4 pkgs. L. C. & D. Rly.

Holland, 4 t. "

Arachide Oil—

Holland, 4 dms. J. Owen

" 5 brls. Poth, Hille & Co.

Arsenic—

Germany, 40 cks. Brandram & Co.

Asbestos—

France, 426 t. Mory & Co.

Italy, 79 t. J. Forsey

" 420 t. Imperial Asbestos Co.

Canada, 475 t. W. Byford

" 1,207 t. G. Ward & Sons

Barium Chloride—

Germany, 22 cks. Petri Brs.

Barytes—

Belgium, 123 pkgs. W. Harrison & Co.

" 11 t. J. L. Lyon & Co.

" 50 t. T. H. Lee

Holland, 10 t. Beresford & Co.

" 49 t. Magee, Taylor & Co.

Germany, 109 t. W. Harrison & Co.

" 19 t. S. H. Willoughby

Bleaching Powder—

Belgium, 12 cks. H. Wallace & Co.

" 12 pkgs. Arnati & Harrison

Bone Meal—

Sydney, 50 t. Lawes Manure Co., Ltd.

Boracic Acid—

Italy, 40 cs. B. & F. Wf. Co.

Holland, 13 pkgs. H. Lorenz

Bromide of Iron—

Germany, 16 pkgs. A. & M. Zimmermann

Camphor—

Germany, 5 brls. L. & I. D. Jt. Co.

" 129 pkgs. H. Grey, jun.

Japan, 82 t. Lewis & Peat

Caoutchouc—

E. Indies, 58 c. Ross & Deering

" 200 t. L. & I. D. Jt. Co.

Germany, 11 t. "

Tamatave, 560 t. "

" 52 t. Hammond & Co.

" 318 t. Procter Brs.

France, 43 t. H. Johnson & Sons

Madagascar, 500 t. Hammond & Co.

" 9 t. Procter Brs.

" 48 t. Blyth, Green & Co.

" 2 t. L. & I. D. Jt. Co.

" 50 t. S. Figgis & Co.

Zanzibar, 5 t. Anderson, Weber & Smith

" 32 t. Clarke & Smith

Germany, 10 t. J. H. Schroder & Co.

" 95 t. W. Balchin

Castor Oil—

Italy, 30 cs. Lucas & Spencer's

" 75 cks. Cayzer, Irvine & Co.

E. Indies, 266 cs. Ross & Deering

France, 42 t. Beresford & Co.

" 65 t. Lucas & Spencer's

Wf., Ltd.

Caustic Potash—

France, 7 drs. F. W. Berk & Co.

Chemicals (otherwise undes.)—

Belgium, 10 crbys. T. H. Lee

Germany, 22 cs. 24 pkgs. "

" 2 t. L. & I. D. Jt. Co.

" 43 t. 18 cks. A. & M.

" 1 t. Zimmermann

Belgium, 10 kgs. Arnati & Harrison

" 1 cs. T. Palmer

Holland, 4 pkgs. L. C. & D. Rly.

" 4 cs. G. Rahn & Co.

" 15 cks. H. Lorenz

U. States, 15 cs. S. Lambert & Co.

France, 5 t. Arnati & Harrison

Chloride of Sulphur—

Holland, 15 cbs. Pillow, Jones & Co.

Copper Sulphate—

Germany, 36 pkgs. F. Smith

Cream of Tartar—

Italy, 9 pkgs. C. Webster

France, 3 Allan Brs & Co.

" 5 B. & F. Wf Co.

" 10 M. Ashby, Ltd.

" 30 Finlay & Co.

Dextrine—

Germany, 101 pkgs. Hernu, Peron & Co.

Holland, 5 J. Barber & Co.

Dyestuffs—**Annatto**

E. Indies, 11 pkgs. J. P. Alpe & Co.

Argols

Italy, 237 pkgs. Thames S. T. & L. Co., Ltd.

" 749 B. Jacob & Sons

Cochineal

France, 6 pkgs. W. Dalton & Co.

Germany, 1 L. & I. D. Jt. Co.

Canaries, 4 W. M. Smith & Sons

Cutch

E. Indies, 800 bxs. Anderson, Weber & Smith

Divi Divi

E. Indies, 74 pkgs. Culverwell Brooks & Co.

" 57 Anderson, Weber & Smith

Extracts

Germany, 10 pkgs. T. H. Lee

U. States, 24 W. Burton & Sons

Sydney, 50 cs. McDougall & Bonthron

Germany, 1 pkge. Craven & Sons

France, 60 drs. Carey & Sons

Holland, 1 Loder, Son & Co.

Gambier

E. Indies, 50 pkgs. E. Boustead & Co.

" 152 S. Barrow & Bro., Ltd.

" 413 Ross & Deering

" 114 Brinkmann & Co.

" 3,610 L. & I. D. Jt. Co.

Indigo

E. Indies, 204 cts. Parry & Co.

" 1 W. Brandts, Son & Co.

" 90 Arbuthnot, Latham & Co.

" 14 L. & I. D. Jt. Co.

" 26 Park, Macfadyn & Co.

" 9 E. Bower & Co.

" 13 Ross & Deering

" 57 R. von Glehn & Sons

" 3 Stutz & Co.

Germany, 14 Schenker & Co.

Logwood

B. W. I., 210 t. Anderson, Anderson & Co.

Madder

Holland, 5 pkgs. W. Balchin

Myrobolams

E. Indies, 670 pkgs. Baxter & Hoare

" 2,559 Beresford & Co.

Shumac

Italy, 2,075 pkgs. J. Kitchin, Ltd.

Tannery's Bark

Adelaide, 251 t. Baxter & Hoare

" 177 Beresford & Co.

Belgium, 547 Leach & Co.

Adelaide, 53 Devitt & Hett

Turmeric

E. Indies, 50 pkgs. Hale & Son

" 40 Lewis & Peat

" 100 L. & I. D. Jt. Co.

" 170 Forbes, Forbes & Co.

Japan, 47 C. A. & H. Nichols

E. Indies, 103 Major & Field

" 110 Deering & Robottom

Valonia

A. Turkey, 21 t. Adams Brs.

Farina—

Holland, 25 pkgs. J. Barber & Co.

" 50 Prop Chmbln. s. Wf.

Germany, 516 Ohlenschlager Brs.

Gamboge—

E. Indies, 15 pkgs. Lewis & Peat

" 6 L. & I. D. Jt. Co.

Glucose—

U. States, 150 pkgs. 325 c. Ohlenschlager Brs.

" 50 275 c. Prop. Scott's Wf.

" 50 309 Fuerst Brs.

" 200 200 J. Barber & Co.

" 175 539 T. M. Duché & Sons

" 125 267 T. W. Crombie & Co.

" 95 520 Prop Chmbln. s. Wf.

Germany, 6 50 J. Barber & Co.

" 100 768 Soundy & Sons

" 40 320 Prop. Chmbln. s. Wf.

" 50 402 Pillow, Jones & Co.

" 500 500 Baxter & Hoare

Gypsum—

Germany, 30 t. Phillips & Graves

Infusorial Earth—

Germany, 49 G. Boor & Co.

Lead Acetate—

Germany, 16 pkgs. F. Boehm

Magnesium—

Germany, 5 pkgs. D. W. Greenhough & Sons

Manure—

France, 58 t. J. Burnett & Sons

Methyl Alcohol—

Belgium, 10 cks. Lister & Biggs

U. States, 125 brls. J. Kertel

Mica—

E. Indies, 49 F. Claydon & Co.

Ceylon, 10 W. M. Smith & Sons

E. Indies, 230 " "

Ochre—

Holland, 21 pkgs. Phillips & Graves

France, 46 W. Harrison & Co.

Phosphate Rock—

Belgium, 25 t. J. Gibbs & Co., Ltd.

Pitch—

Germany, 82 brls. C. B. Leighton

N. Russia, 350 Linck Moeller & Co.

Plumbago—

Germany, 10 cs. T. H. Lee

E. Indies, 150 cks. R. G. Hall & Co.

" 161 J. Thredder, Son & Co.

Potash—

Canada, 31 c. Charles & Fox

Germany, 103 cks. W. G. Blagden

Potassium Carbonate—

France, 30 c. J. A. Reid

Potassium Sulphate—

Germany, 508 pkgs. D. de Pass & Co.

Pumice Stone—

Italy, 48 c. O'Hara & Hoar

" 25 H. B. Alder & Co.

" 45 Beck & Pollitzer

" 10 Rosenberg, Loewe & Co.

" 70 W. Pope & Co.

" 1 t. Fellows, Morton & Co.

Pyrites—

Spain, 1,590 t. Naylor, Benzon & Co.

" 998 Anderson, Anderson & Co.

Rosin—

U. States, 7,796 brls. H. Hill & Sons

Rosin Oil—

France, 49 brls. W. B. Dick & Co.

" 200 Fleming's Oil Co., Ltd.

Salammoniac—

Holland, 4 cks. Kaltenbach & Schmitz

Saltpetre—

Germany, 103 pkgs. P. Hecker & Co.

" 4 cks. Petri Brs.

" 40 J. Hall & Son

" 7 T. H. Lee

E. Indies, 30 Brown & Elmslie

" 582 bgs. Perkins & Homer

Sodium Acetate—

France, 29 pkgs. Johnson & Hooper

Sodium Hyposulphite—

Germany, 146 kgs. F. Boehm

" 146 pkgs. T. H. Lee

Sodium Sulphate—

Belgium, 59 cks. Union L. Co.

Starch—

Belgium, 436 pkgs. T. H. Lee

" 348 F. Rosenthal & Co.

" 112 Leach & Co.

" 112 F. Claydon & Co.

Sulphur—

Holland, 40 J. Barber & Co.

" 60 G. Rahn & Co.

" 100 Little & Johnston

" 30 T. H. Lee

Germany, 40 Philipps & Graves

" 121 " "

" 906 Horne & Co.

Stearine—

U. States, 180 cks. Un Wvs Co.

Sulphur—

Italy, 100 t. Soundy & Sons

" 43 C. Vincent

" 11 J. Houghton & Sons

" 4 Typke & King

" 15 1/2 F. C. Devon & Co.

" 12 Magee, Taylor & Co.

" 660 W. C. Bacon & Co.

" 50 Soundy & Son

" 41 G. Boor & Co.

" 5 F. Smith

Talc—

Austria, 450 Stobbs, Wilson & Co.

France, 100 G. G. Blackwell, Sons & Co.

Ceylon, 300 W. M. Smith & Sons

Tallow and Stearine—

U. States, 250 cks. Vaughan & Brown

Tar—

N. Russia, 100 brls. Elkan & Co.

" 3,000 Linck, Moeller & Co.

" 3,667 W. F. Malcolm & Co.

Tartaric Acid—

Holland, 40 cks. B. & F. Wf. Co.

" 10 pkgs. Kirkpatrick & Co.

Ultramarine—

Holland, 7 pkgs. Hernu, Peron & Co.

Yarnish—

Germany, 1 pkge. H. Lambert

White Lead—

Germany, 10 pkgs. H. Lambert

" 18 Colthurst & Harding

Belgium, 23 A. & M. Zimmermann

Holland, 29 Randall Brs

Wood Pulp—

Canada, 20,178 pkgs. E. J. & W. Goldsmith

Sweden, 2,249 Tough & Henderson

" 6,739 W. J. Lennard & Sons

" 1,467 J. Dickinson & Co.

Germany, 580 H. Lambert

" 100 Henderson, Craig & Co.

" 400 W. Friedlander

Norway, 500 J. Knoblauch

" 250 Tough & Henderson

" 406 W. G. Taylor & Co.

" 750 Moreton Cox Brs.

Portugal, 90 Ciama Wood Pulp Co.

Holland, 1,042 Moreton Cox Brs.

Denmark, 280 G. F. Green & Co.

Zinc Oxide—

Holland, 500 pkgs. Soundy & Sons

" 25 M. Ashby, Ltd.

U. States, 100 " "

Germany, 150 " "

Zinc Sulphate—

Sweden, 82 pkgs. M. D. Co.

LIVERPOOL.

Week ending August 9th.

Acetate of Lime—

New York, 2,411 bgs.

Antimony—

Valparaiso, 64 bgs. Hainsworth, Watson & Co.

" 198 Aillon, Aramayo & Co.

" 136 sks. F. Huth & Co.

" 145 " "

Havre, 153 bgs. Aillon, Aramayo & Co.

Antimony Ore—

Valparaiso, 542 sks. Aillon, Aramayo & Co.

Asbestos—

Rotterdam, 1 cs.

Barytes—

Antwerp, 34 cks. 150 bgs.

Borate of Lime—

Valparaiso, 119 sks.

Borax—

Havre, 20 cs. Cunard S. S. Co.

Castor Oil—

Leghorn, 12 cs. J. Clarke & Co.

Marseilles, 60 brls.

Calcutta, 2,570 cs. Ralli Bros.

Antwerp, 10 brls. J. T. Fletcher & Co.

Colours—

Hamburg, 2 cs.

Rotterdam, 1 10 cks.

Dyestuffs—**Annatto**

Bordeaux, 13 cs.

Cutch

New York, 10 bxs.

Rangoon, 2,100

Genoa, 2 pkgs. 2 cs.

Divi Divi

Hamburg, 180 bgs.

Extracts

Baltimore, 50 brls. Mucklow & Co.

Bordeaux

Bordeaux, 150 cks.

Gambier

Singapore, 885 bls.

Orchella

Lisbon, 10 bgs. Edwards Bros.

Shumac

Palermo, 100 bgs.

Farina—

Fiume, 190 bgs.

Glucose—

New York, 498 brls.

Rotterdam, 10 cks.

Iodine—

Valparaiso, 15 brls. Csar, Wehrhahn

Lead Acetate—

Hamburg, 7 cks.

Litharge—

Rotterdam, 15 cks.

Manganese Ore—

Kobe, quantity

Ultramarine —	
Hamburg, 5 cks.	
Rotterdam, 20	
Varnish —	
Boston, 50 bxs. 1 kt.	W. H. Staynes & Co.
Waste Salt —	
Dunkirk, 39 bgs.	
Hamburg, 96	
White Lead —	
Rotterdam, 25 cks.	
Wood Pulp —	
Gothenburg, 136 bbls.	
Montreal, 4 407	A. Rice & Co.
Zinc Oxide —	
New York, 100 brls.	
Antwerp, 35	4 cks.
Rotterdam, 50	
Zinc Skimmings —	
New York, 6 cks.	

MANCHESTER.

Week ending August 11th.

Antimony Salt —	
Rotterdam, 1 ck.	Simpson, Howden, & Co.
Hamburg, 2	
Carbonic Acid —	
Rotterdam, 30 tubes.	Simpson, Howden, & Co.
Castor Oil —	
Antwerp, 57 brls.	
Colours —	
Rotterdam, 9 cks. 12 cs. 26 brls.	Simpson, Howden, & Co.
Antwerp, 2 brls. 7 cks.	
Hamburg, 11 cs. 48	
Cream of Tartar —	
Rotterdam, 7 cks.	Simpson, Howden, & Co.
Dyestuffs —	
Extracts	
Rotterdam, 10 cks.	Simpson, Howden, & Co.
Bordeaux, 60	
Farina —	
Hamburg, 100 bgs.	
Limestone —	
Antwerp, 6 crts.	
Palm Oil —	
Hamburg, 1 ck.	
Potash —	
Rotterdam, 10 cks.	Simpson, Howden, & Co.
Hamburg, 6	
Starch —	
Rotterdam, 100 cs.	Simpson, Howden, & Co.
Hamburg, 249	
Stearine —	
Antwerp, 7 bgs.	
Tannic Acid —	
Hamburg, 12 cks.	
Tartar —	
Bordeaux, 3 cks.	
Tartar Emetic —	
Hamburg, 6 cks.	
Tartaric Acid —	
Rotterdam, 2 cks. 30 kgs.	Simpson, Howden, & Co.
Tin Oxalate —	
Rotterdam, 6 brls.	Simpson, Howden, & Co.
Tin Perchloride —	
Antwerp, 2 cks.	
Waste Salt —	
Hamburg, 250 t. qty.	
Wood Pulp —	
Sanderson, 3,586 bls.	
Hamburg, 28	
Zinc Oxide —	
Rotterdam, 50 brls. 10 cks.	Simpson, Howden, & Co.

HULL.

Week ending August 11th.

Acetic Acid —	
Rotterdam, 20 bbls. 1 cby.	Hutchinson & Son
Alum —	
Rotterdam, 39 cks.	W. & C. L. Ringrose

Ammonia —	
Rotterdam, 3 cks.	W. & C. L. Ringrose
Aniline —	
Antwerp, 16 cs.	Wilson, Sons, & Co., Ltd.
Barytes —	
Antwerp, 75 cks.	Bailey & Leatham
Rotterdam, 48	Hutchinson & Son
Camphor —	
Hamburg, 7 cks. 1 brl.	Wilson, Sons, & Co., Ltd.
Carbonic Acid —	
Rotterdam, 50 tubes.	
Chemicals (otherwise undescribed)	
Danzig, 17 cks.	Veltmann & Co.
Bremen, 2 pks.	
Dunkirk, 27 pks.	Wilson, Sons, & Co., Ltd.
" 60	
Antwerp, 228	"
Colours —	
Rotterdam, 3 cs. 20 cks. 80 pks.	W. & C. L. Ringrose
" 6 17 232 3 brls.	Hutchinson & Son
" 1 8	Wilson, Sons, & Co., Ltd.
Danzig, 10	"
Ghent, 7 brls.	Wilson, Sons, & Co., Ltd.
Hamburg, 5 cks.	"
Stettin, 24	"
Antwerp, 30	51 pks. Bailey & Leatham
Amsterdam, 2	Johnson Bros.
Antwerp, 6 brls.	
Cottonseed Oil —	
New York, 60 brls.	Wilson, Sons, & Co., Ltd.
Cream of Tartar —	
Rotterdam, 4 cks.	W. & C. L. Ringrose
Dyestuffs —	
Alizarine	
Rotterdam, 29 pks. 8 cks.	W. & C. L. Ringrose
" 6 brls.	Hutchinson & Son
Farina —	
Ghent, 260 cs.	Wilson, Sons, & Co., Ltd.
Stettin, 150 bgs.	"
Harlingen, 1,795	
Hamburg, 500	
Glucose —	
Hamburg, 1 ck.	Wilson, Sons, & Co., Ltd.
Kaolin —	
Rotterdam, 252 bgs.	Hutchinson & Son
Lead Acetate —	
Hamburg, 8 cks.	Wilson, Sons, & Co., Ltd.
Manure —	
Ghent, 1,416 bgs.	Wilson, Sons, & Co., Ltd.
Antwerp, 50 t.	
Mercury —	
Rotterdam, 2 cs.	Hutchinson & Son
Minium —	
Rotterdam, 20 cks.	Hutchinson & Son
Naphthol —	
Rotterdam, 1 ck.	W. & C. L. Ringrose
Oxalic Acid —	
Rotterdam, 4 cks.	W. & C. L. Ringrose
Phosphate —	
Beaufort, 1,050 t.	
Plumbago —	
Hamburg, 25 pks.	Wilson, Sons, & Co., Ltd.
Potash —	
Antwerp, 4 dms.	
Pyrates —	
Huelva, 2,300 t.	
Saltpetre —	
Hamburg, 95 kgs.	Wilson, Sons, & Co., Ltd.
Starch —	
Ghent, 24 cs.	Wilson, Sons, & Co., Ltd.

Bremen, 3,138	Veltmann & Co.
Antwerp, 200	Bailey & Leatham
" 72	
Stearine —	
Antwerp, 28 bgs.	Wilson, Sons, & Co., Ltd.
Tar —	
Stockholm, 10 brls.	Wilson, Sons, & Co., Ltd.
Uleaborg, 1,612	
Tartaric Acid —	
Rotterdam, 4 cks.	W. & C. L. Ringrose
Turpentine —	
Liban, 53 cks.	
Ultramarine —	
Bremen, 8 cks.	
Rotterdam, 10 cs.	Ganderton Bros.
White Lead —	
Rotterdam, 3 cks.	Sissons Bros.
Antwerp, 85	Bailey & Leatham
Rotterdam, 159	Hutchinson & Son
Wood Pulp —	
Helsingfors, 152 bls.	J. Good & Sons
" 164	Furley & Co.

GLASGOW.

Week ending August 16th.

Aniline —	
Rotterdam, 5 cs.	
Aniline Colours —	
Hamburg, 40 cks. 6 cs.	
Barytes —	
Rotterdam, 40 pks.	
Barytes Sulphate —	
Antwerp, 50 bgs.	
Castor Oil —	
Antwerp, 29 cks.	
Colours —	
Rotterdam, 7 cks. 1 cs. 40 pks.	
Antwerp, 3	
Dyestuffs —	
Alizarine	
Rotterdam, 8 brls. 44 cks. 18 pks.	
Extracts	
Leghorn, 50 cks.	
Logwood	
M. Christi, 544 t.	M'Arthur, Scott & Co.
Madder	
Rotterdam, 4 cks.	
Guano —	
Danforth, 804 sks.	
Infusorial Earth —	
Hamburg, 23 bgs.	
Lead Acetate —	
Rotterdam, 28 cks.	
Manure —	
Valencia, 1 bx 2 hf. bgs.	
Mica —	
New York, 20 brls.	
Oxalic Acid —	
Rotterdam, 6 cks.	
Paraffin Wax —	
New York, 53 brls.	
Potashes —	
Rotterdam, 46 cks.	
Montreal, 21 brls.	
Pyrates —	
Huelva, 720 t.	
" 1,785	Tharsis Sulphur & Copper Co.
Rosin —	
New York, 1,005 brls.	
Soap —	
New York, 440 brls.	
Starch —	
Rotterdam, 40 cs. 1 bl.	
Amsterdam, 200	40 bxs.
Antwerp, 200	
Stearine —	
Rotterdam, 17 cks.	
Tallow —	
New York, 30 tcs.	
Tar —	
New York, 300 brls.	
Tartar Emetic —	
Hamburg, 4 cks.	
Ultramarine —	
Rotterdam, 5 cs.	
White Lead —	
Rotterdam, 50 cks.	

Wood Pulp —	
New York, 150 s. 106 bbls.	
Portland, Me. 3,879	
Christiana, 234 bls.	
Zinc Oxide —	
Antwerp, 45 cks.	

TYNE.

Week ending August 11th.

Barium Chloride —	
Hamburg, 6 cks.	
Carbonic Acid Gas —	
Rotterdam, 100 tubes.	Tyne S. S. Co.
Colours —	
Ghent, 4 cks.	Tyne S. S. Co.
Rotterdam, 4 cs.	"
Limestone —	
Antwerp, 1 crt.	Tyne S. S. Co.
Phosphate —	
Antwerp, 220 t.	Langdale's Chemical M. Co.
Starch —	
Rotterdam, 268 cs.	Tyne S. S. Co.
Ghent, 40 cs.	
Tartaric Acid —	
Rotterdam, 3 cks.	Tyne S. S. Co.
Ultramarine —	
Hamburg, 15 cks.	
White Lead —	
Ghent, 1 ck.	Tyne S. S. Co.
Wood Pulp —	
Gothenburg, 82 pks.	
Drammen, 16 bls.	
Hamburg, 25	

GOOLE.

Week ending August 8th.

Alizarine —	
Rotterdam, 17 pks. 15 cks.	
Alkali —	
Calais, 11 cks.	
Hamburg, 4	
Antimony —	
Boulogne, 5 cks.	
Caoutchouc —	
Boulogne, 3 cks. 3 cs.	
Chemicals (otherwise undescribed)	
Hamburg, 5 pks.	
Dyestuffs (otherwise undescribed)	
Rotterdam, 156 pks.	
Boulogne, 15	6 cks.
Farina —	
Hamburg, 100 bgs.	
Delfzijl, 2,046	
Fustic —	
Ministidlan, 400 t.	
Jamaica, 82	
Glucose —	
Dunkirk, 120 bgs.	
Hamburg, 47 cks.	
Logwood —	
Belize, 431 t.	
Jamaica, 387	
Madder —	
Rotterdam, 3 cks.	
Phosphate —	
Ghent, 1,500 bgs.	
Potash —	
Dunkirk, 3 cks. 30 dms.	
Rotterdam, 34	
Saltpetre —	
Rotterdam, 200 bgs.	
Hamburg, 18 cks.	
Soda —	
Rotterdam, 10 cks.	

GRIMSBY.

Week ending August 11th.

Aniline Dyes —	
Antwerp, 6 cks. 15 cs. 30 pks.	
Chemicals (otherwise undescribed)	
Hamburg, 1 ck. 10 cs.	
Dyestuffs (otherwise undescribed)	
Dieppe, 9 cks.	
Farina —	
Hamburg, 100 bgs.	
Size —	
Antwerp, 3 cs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending August 15th

Acid—		
Genoa, 7 c.	£15	
Ammonia (Liquid)—		
Cologne, 20 cydls.	£75	
Antwerp, 20	100	
Ammonium Carbonate—		
Bordeaux, 10 cks.	£50	
Sydney, 10 cs.	21	
New York, 2 t. 5 c.	75	
Philadelphia, 82 pkgs.	33	
Ammonium Sulphate—		
Rouen, 25 t.	£350	
Barium Dioxide—		
Rouen, 5 t. 4 c.	£175	
Benzole Acid—		
New York, 5 cs.	£34	
Borax—		
Harlingen, 4 c.	£14	
Carbolic Acid—		
Rouen, 15 cks.	£39	
Hamburg, 80	583	
Antwerp, 8	9	
Caustic Potash—		
Sydney, 1 t. 2 c.	£26	
Caustic Soda—		
Wellington, 15 t.	£30	
Natal, 5 c.	13	
Algoa Bay, 1	8	
Sydney, 6	3	
Pt. Elizabeth, 1	10	
Melbourne, 15	25	
Townsville, 5	54	
Chemicals (otherwise undescribed)		
Melbourne, 10 cs. 1 ck. 11 pt.-cs.	£53	
Adelaide, 12 5 kgs. 7	173	
Calcutta, 5 c.	18	
Fremantle, 10	31	
Brussels, 2 t. 7	322	
Citric Acid—		
Libau, 6 c.	£50	
Taganrog, 14	120	
Odessa, 1	8	
Christiania, 1 ck.	32	
Hamburg, 1 t. 6	176	
Lisbon, 1	9	
Cadix, 4	29	
Genoa, 19	108	
Amsterdam, 5 kgs.	34	
Riga, 5	40	
Adelaide, 2	17	
Coal Tar Products—		
Alizarine		
Sydney, 1 ck.	£25	
Anthracene		
Dusseldorf, 54 cks.	£290	
Rotterdam, 120	577	
Aniline Oil		
Genoa, 10 drs.	£260	
Aniline Dye		
Genoa, 1 cs.	£6	
Aniline Salts		
New York, 57 cks.	£320	
Benzol		
Rotterdam, 23 dms. 98 cks.	£477	
Boulogne, 32 puns.	200	
Terneuzen, 40	220	
Treport, 50	106	
Carbolic Acid		
Antwerp, 8 cks.	£9	
Rouen, 15	39	
Hamburg, 80	583	
Coal Products		
Brussels, 1 ck.	£12	
Coal Tar Dyes		
Boston, 9 cks.	£114	
Creosote		
Hamburg, 100 brls.	£123	
Cette, 2,767	1,368	
Antwerp, 25	20	
Naphtha		
Treport, 24 brls.	£68	
Naphthalene		
Amsterdam, 14 cks.	£29	
Hamburg, 4 260 bgs.	169	
Aden, 4	10	
Paraffin Wax		
Antwerp, 50 cs.	£146	
Pitch		
Algoa Bay, 15 cks.	£5	
New York, 1,000 cks. 3,359 bgs.	1,125	
Antwerp, 250 t.	400	
Havre, 600	780	

Gothenburg, 30 cks.	20	
Boston, 500 175 brls.	380	
Tar		
Algoa Bay, 145 drs.	£14	
Gothenburg, 60 cks.	39	
Boston, 98 brls.	55	
Tar Oil		
Gothenburg, 218 cks.	£158	
Marseilles, 10	15	
Copper Sulphate—		
Cologne, 1 t. 10 c.	£25	
Rotterdam, 6	87	
Bordeaux, 80	1,200	
Cream of Tartar—		
Adelaide, 5 t.	£320	
Fremantle, 10	33	
Libau, 2	11	
Sydney, 2 10	165	
Melbourne, 2 10	166	
Disinfectants—		
Mauritius, 14 cks.	£10	
Hong Kong, 20 6 cs.	128	
Hamburg, 20 t. 9 c.	428	
Sydney, 8 cs.	18	
New York, 5 15 dms.	25	
Hydrochloric Acid—		
Algoa Bay, 10 cs.	£8	
Manure—		
Malaga, 10 t.	£80	
Taragona, 51	460	
Sables d'Olonne, 207	890	
Treport, 30	300	
Gothenburg, 128 1 c.	350	
Riga, 192 8	160	
Hamburg, 22 5	390	
Mauritius, 182 1	1,610	
Varburg, 500	1,667	
Landerneau, 45	450	
Oxalic Acid—		
Lisbon, 1 t. 1 c.	£35	
Phosphoric Acid—		
Philadelphia, 82 pkgs.	£270	
Potash—		
Bankok, 2 c.	£10	
Brisbane, 7	7	
Melbourne, 1 t. 2	36	
Potash Crystals—		
Oporto, 2 c.	£15	
Brussels, 19	114	
Potash Salts—		
Algoa Bay, 2 t. 15 c.	£450	
Potassium Chlorate—		
Genoa, 1 t.	£60	
Salammoniac—		
Batoum, 1 t.	£35	
Trebizonde, 2 2 c.	78	
Sulphuric Acid—		
Sydney, 1 c.	£11	
Saltcake—		
Stockholm, 75 t.	£112	
Saltpetre—		
Santos, 4 t. 18 c.	£115	
Bahia, 1 10	40	
Oporto, 1 2	23	
Sheep Dip—		
Nelson, 25 cs. 301 pkgs.	£272	
Cape Town, 25 kgs.	68	
E. London, 100 dms.	20	
Melbourne, 200	300	
Sydney, 622	300	
Soda—		
Sydney, 2 t. 10 c.	£16	
Soda Ash—		
Lyttelton, 10 t. 2 c.	£42	
Soda Crystals—		
Sydney, 51 t.	£110	
Melbourne, 3 2 c.	19	
Adelaide, 10 18	23	
Sodium Bicarbonate—		
Marseilles, 20 t.	£143	
Launceston, 1	7	
Adelaide, 3	20	
Sodium Tartrate—		
Brussels, 5 c.	£16	
Spent Oxide—		
Dunkirk, 65 t.	£33	
Strontium Nitrate—		
Calcutta, 12 c.	£10	
Sulphur—		
Cape Town, 3 t. 3 c.	£31	
Sydney, 5	32	

New York, 1 5	48	
Aden, 3 15	38	
Sulphuric Acid—		
Batoum, 10 cs.	£25	
B. Ayres, 10 dms	15	
E. London, 20 cs.	15	
Superphosphate—		
Bundaberg, 11 t. 6 c.	£90	
Landerneau, 80	240	
Riga, 478	1,434	
Tartaric Acid—		
Adelaide, 1 t.	£92	
Melbourne, 1	93	

LIVERPOOL.

Week ending August 15th.

Alkali—		
Iquique, 8 t.	£52	
Alum—		
Ancona, 6 t.	£42	
Cape Town, 1	7	
Smyrna, 6 18 c. 1 q.	39	
Melbourne, 1 9	7	
Lisbon, 1 11	17	
Santa Maura, 1 14	8	
Aluminous Cake—		
Victoria, B.C., 10 t. 4 c. 2 q.	£28	
Ammonia Ash—		
Victoria, 4 t. 18 c.	£17	
Ammonium Carbonate—		
Naples, 8 c. 2 q.	£12	
Copenhagen, 2 t. 3 q.	72	
Rotterdam, 13 1	24	
Odense, 1 3	37	
Genoa, 1 5	44	
Nantes, 1 5	35	
Antwerp, 10 2	18	
Ammonium Chloride—		
Vera Cruz, 6 c. 2 q.	£12	
Smyrna, 10	19	
Manila, 1 3	5	
Genoa, 19 9	36	
Messina, 10 2	21	
Iquique, 9 t. 17 1	150	
Barcelona, 2 5 1	84	
Trieste, 1	34	
M. Video, 3 15	87	
Ammonium Sulphate—		
Nickerie, 10 t. 12 c. 1 q.	£148	
Newport, 51 15 3	770	
Canada, 10 12	64	
New York, 25 9	363	
Antwerp, 51 1 3	671	
Valencia, 51 1 1	709	
Malaga, 101 4 2	1,378	
Barcelona, 50	633	
Amorphous Phosphorus—		
Hiogo, 17 c. 2 q.	£193	
Aniline Dyes—		
Canada, 2 kgs.		
Rangoon, 5 cs.		
Aniline Oil—		
Budapest, 9 dms.		
Aniline Salts—		
Hiogo, 10 brls.		
Anthracene—		
Rotterdam, 17 cks.		
Barium Chlorate—		
New York, 10 c.	£48	
Barytes—		
Hamburg, 12 cks.		
Bicarbonate of Soda—		
Aarhus, 14 cks.		
Bordeaux, 50 kgs.		
Copenhagen, 125 8		
Genoa, 50	4	
Gd. Canary, 7		
Amsterdam, 50		
Brantford, 1,104		
Melbourne, 200		
Newfairwater, 20		
Rotterdam, 75		
Rouen, 26		
Stettin, 40		
Antwerp, 34		
Barcelona, 30		
Bombay, 325		
Calcutta, 250		
Dunkirk, 10		
Genoa, 35		
Hamburg, 20		

Hong Kong, 10		
Kingston, Jam, 20		
Melbourne, 150		
Montreal, 30 20 bgs.		
Nantes, 60		
Naples, 50		
Newcastle, 110		
Singapore, 17		
Sydney, 667		
Teneriffe, 5		
Vera Cruz, 20		
Bisulphite of Lime—		
Boston, 2 t.		
Bleaching Powder—		
Rio de Janeiro, 1 t. 16 2 q.	£13	
Boston, 434 cks.		
Calcutta, 66 cs.		
Montreal, 18		
New York, 291		
Rouen, 29		
Vigo, 3		
Boston, 295		
Callao, 7		
Newport News, 22		
New York, 100 100 brls.		
Philadelphia, 135		
Boracic Acid—		
Stockholm, 10 t.	£225	
Rotterdam, 5 10 c.	160	
Boston, 2 3	64	
Lisbon, 5	162	
New York, 8 2 2 q.	242	
Borax—		
Namur, 5 t. 8 c.	£108	
Montreal, 12	13	
Malaga, 5 3 q.	6	
Rotterdam, 3 9	82	
B. Ayres, 2 10	57	
Calcium Chloride—		
New York, 10 t. 4 c.	£24	
Carbolic Acid—		
Hamburg, 1 t.	£6	
Yokohama, 1 10 c.	73	
Hiogo, 1	52	
Nagasaki, 3 10 3 q.	168	
Halifax, N.S., 4 1	17	
Rotterdam, 1 6	77	
Genoa, 12 3	24	
Castor Oil—		
Alexandria, 5 cs.		
Caustic Potash—		
Ilo Ilo, 1 t. 5 c.	£37	
Caustic Soda—		
Alexandria, 6 dms.		
Amsterdam, 59		
Antwerp, 6		
Baltimore, 420		
Boston, 97		
Brantford, 29		
Calcutta, 170		
Callao, 20		
Catania, 60		
Cienfuegos, 15		
Constantinople, 11		
Barcelona, 250		
Fairwater, 35		
Hamburg, 17 4 brls.		
Havana, 25		
Havre, 8		
Hiogo, 30		
Leghorn, 6		
Lisbon, 114 6 cks.		
Macao, 2		
Malta, 15		
Melbourne, 115		
New York, 50		
Odessa, 432		
Pernambuco, 72 60		
Puerto Cabello, 18		
Rotterdam, 6		
Santander, 15		
Seville, 50		
Sourabaya, 8		
Sydney, 29		
Tarragona, 20		
Vera Cruz, 100		
Vigo, 28		
Wellington, 16		
Bari, 54		
Corunna, 20		
E. London, 15		
Genoa, 95		
Hamburg, 86		

Hiogo, 150 Fiume, 75 Malaga, 30 Marseilles, 25 N. Orleans, 30 New York, 50 Patras, 3 Pt. Natal, 3 ca. Rio de Janeiro, 18 St. Louis, 30 Samarang, 9 Santos, 25 Talcahuano, 130 Tarragona, 30 Trieste, 70 Victoria, B. C., 50 Chemicals (otherwise undescribed) Canada, 19 c. £31 Genoa, 1 t. 5 45 Montreal, 1 36 Trebizonde, 16 29 Trieste, 3 ca. 27 Salazora, 6 1 q. 11 Bombay, 1 16 68 China Clay— Barcelona, 5 t. 3 c. Boston, 50 Lisbon, 12 Maceio, 5 2 Boston, 26 1/2 Citric Acid— Montreal, 10 c. £70 Copperas— Caldera, 10 t. 5 c. £19 Copper Sulphate— New York, 25 t. 10 c. 2 q. £357 Rouen, 14 15 214 Tampico, 25 362 Talcahuano, 2 5 1 34 Bordeaux, 49 14 2 775 Santos, 2 10 8 Ghent, 2 11 37 Amsterdam, 2 10 34 Nantes, 13 16 2 480 Konigsberg, 1 3 2 16 Lisbon, 5 19 134 Crescote— Santos, 2 dms. Disinfectants— Boston, 6 c. £9 Dried Blood— Nantes, 10 t. £99 Dyestuffs— Boston, 16 cs. Montreal, 30 bgs. Epsom Salts— Halifax, 15 brls. Rio de Janeiro, 100 kgs. Guayaquil, 16 cs. Gypsum— New York, 32 t. 19 c. £125 Lime— Pernambuco, 37 brls. Litharge— Philadelphia, 20 cks. Manure— St. Nazaire, 1,155 t. 4 c. 1 q. £5,831 Bordeaux, 110 3 630 Sourabaya, 2 14 Naphthol Colours— New York, 9 cks. Nickel— Kobe, 20 cs. Shanghai, 2 1/2 t. Oxalic Acid— Bordeaux, 10 c. £25 Boston, 18 t. 11 541 Paint— Cartagena, 50 kgs. Cienfuegos, 4 cks. 2 brls. Colombo, 12 bxs. Havana, 35 pcks. Havre, 2 4 Jaffa, 3 Lagos, 16 Nuevitos, 16 dms. Punta Arenas, 200 Rangoon, 160 Rosario, 18 Tripoli, 10 Valparaiso, 8 cs. Colon, 10 Havana, 6 Kingston, Jam., 325 Lagos, 5 Lanzarote, 80 Lisbon, 20 Loanda, 20 Malta, 64 Para, 75 Ponce, 3	Rio Grand do Sul, 2 St. John's, N. Id., 23 Sierra Leone, 5 Tripoli, 14 Valparaiso, 60 Painters' Colours— Amsterdam, 6 kgs. 6 dms. Antwerp, 8 Baltimore, 50 156 cks. Bolivia, 20 Candia, 3 Cape Town, 2 tca. 2 Chalcis, 2 Constantinople, 400 Corfu, 5 1 brl. Guayaquil, 3 ca. 92 Havana, 2 Matanzas, 2 Montreal, 5 Para, 121 14 Pt. Elizabeth, 5 20 Rangoon, 1 ca. 11 Rio de Janeiro, 1 San Juan, 9 San Catharina, 20 Santiago de Cuba, 2 Santos, 3 Amsterdam, 23 Bakana, 25 Bonny, 25 Bremerhaven, 2 10 2 Calcutta, 1 ca. 4 Constantinople, 200 Galatz, 50 cs. 102 Hamburg, 40 bgs. Janina, 18 Lisbon, 227 Para, 5 24 Penang, 5 pcks. 200 300 Philadelphia, 20 226 Retimmo, 1 tce. 3 San Juan, 40 20 San Sebastian, 52 Santiago de Cuba, 4 Smyrna, 52 1 Talcahuano, 15 Zante, 3 Paraffin Wax— Alexandria, 3 ca. Piræus, 3 bgs. Smyrna, 15 Pernanganates— New York, 3 c. £9 Phosphorus— M. Video, 8 c. £55 Yokohama, 20 cs. 30 Pitch— Alexandria, 25 brls. Potassium Bichromate— Vera Cruz, 6 c. £11 Aleppo, 5 11 Potassium Carbonate— St. Louis, 4 t. 2 c. 2 q. £95 Potassium Chlorate— Lisbon, 3 c. 49 Hiogo, 43 t. 2,543 Naples, 5 19 Baltimore, 25 10 498 Boston, 2 10 159 Copenhagen, 3 189 New York, 14 10 858 Rotterdam, 6 17 Potassium Prussiate— Boston, 20 t. £1,774 Rosin— Rotterdam, 500 brls. Salt— Akassa, 400 t. Ambrizette, 13 1/2 Antwerp, 100 Baltimore, 94 Banana, 200 Boston, 400 Buguma, 20 Calcutta, 1,190 Cameroon, 93 11 c. Cape Lopez, 4 1/2 Cape Town, 22 1/2 Chittagong, 2,950 E. London, 24 1/2 Esquimalt, 100 Fernando Po, 4 1/2 Gaboon, 6 1/2 Ghent, 100 Hamburg, 11 Lagos, 50 Melbourne, 25 Montreal, 915 N. Castle, N.S.W., 75 Noqui, 43 8 Opobo, 20 2 Para, 633 11	Pernambuco, 24 Portland, 131 Pt. Natal, 102 Quebec, 600 Rotterdam, 212 San Francisco, 215 Cette Camma, 10 Sydney, 30 Trinidad, 17 Victoria, W.I., 30 Baltimore, 130 Brass, 10 Cape Coast, 25 Christiania, 5 Hillsboro', N.S., 200 Monrovia, 5 New York, 164 Trinidad, 36 Valparaiso, 4 1/2 Salt Cake— Baltimore, 180 t. 6 c. £358 Antwerp, 103 11 123 New York, 201 12 1 q. 202 Saltpetre— Cartagena, 2 t. £34 Barcelona, 3 15 c. 83 Sheep Dip— Cape Town, 1 t. 2 c. £33 B. Ayres, 23 485 Pt. Natal, 16 98 Punta Arenas, 6 cks. 39 Soap— Accra, 59 bxs. Algoa Bay, 101 Ambriz, 6 Antigua, 130 Bahia, 1 Barbadoes, 875 7 Batavia, 2,000 Boma, 10 Bombay, 19 5 Cameroon, 120 Colon, 500 Curacao, 75 Dominica, 10 E. London, 40 26 Gibraltar, 320 Kingston, 100 Manaos, 290 Montego Bay, 500 M. Video, 2 New York, 175 1 Old Calabar, 250 Rangoon, 2 Rio de Janeiro, 5 Shanghai, 2,500 Sierra Leone, 100 Tangiers, 10 Teneriffe, 635 Trieste, 1 Trinidad, 200 Underhill, 10 Valparaiso, 200 Zanzibar, 2,000 Alexandria, 37 Antwerp, 210 Axim, 75 Barbadoes, 10 Benin, 200 Bombay, 210 B. Ayres, 2 Calcutta, 50 Cameroon, 50 Cape Coast, 50 Curacao, 50 Drewin, 40 E. London, 525 Gaboon, 70 Grenada, 151 1 Hamburg, 600 Lagos, 80 Loanga, 160 Malta, 5 New York, 14 N. Kombi, 20 Pt. Natal, 225 Rotterdam, 325 St. Lucia, 100 Salt Pond, 20 Surinam, 120 Teneriffe, 98 Tobago, 30 Ukaka, 50 Warre, 100 Soda Ash— Baltimore, 960 bgs. 128 tcs. Batavia, 49 brls. Boston, 200 87 cks. Candia, 50 Copenhagen, 100 Gothenburg, 100 Kobe, 50 Matanzas, 25 Montreal, 15 Newport News, 250 New York, 1,840	Philadelphia, 122 Puerto Cabello, 9 Rotterdam, 21 Santos, 5 Smyrna, 35 Sydney, 7 cs. Syria, 150 Adelaide, 68 Antwerp, 100 Baltimore, 2,116 133 tcs. Barcelona, 133 Bombay, 13 Boston, 35 Bombay, 600 146 99 Fiume, 300 Ghent, 50 Kobe, 317 Melbourne, 35 New York, 3,042 44 293 Philadelphia, 1,200 155 Piræus, 60 Rio de Janeiro, 295 Salonica, 180 Smyrna, 500 25 Sydney, 138 180 Valparaiso, 10 Victoria, B.C., 10 Yokohama, 50 Soda Crystals— Boston, 140 brls Constantinople, 50 London, Ont., 50 kgs. 50 bds. Sourabaya, 50 Valparaiso, 120 bgs. Boston, 56 Montreal, 56 100 kgs. New York, 280 Philadelphia, 280 cks. Piræus, 20 Talcahuano, 25 Sodium Bihorate— Antwerp, 29 cks. 7 pks. Genoa, 30 cs. Hamburg, 22 Naples, 10 Halifax, 7 brls. Sodium Chlorate— Antwerp, 150 kgs. Hamburg, 20 Rotterdam, 20 Hamburg, 35 Sodium Fluoride— Hamburg, 100 bgs. Sodium Silicate— Madeira, 5 cks. 8 brls. Malaga, 1 Salonica, 7 Shanghai, 16 Wellington, 52 Spirits of Turpentine— Aguilas, 5 dms. Tacopilla, 10 Singapore, 100 Sulphur— Philadelphia, 80 t. 2 c. £280 Montreal, 100 1 415 Vera Cruz, 10 48 Quebec, 4 10 18 Boston, 480 3 1598 Antwerp, 11 16 42 Nickerie, 2 3 12 Sulphuric Acid— Rio Grande, 1 c. £5 Nickerie, 1 t. 10 2 q. 10 Superphosphate— Hamburg, 520 t. £1,040 Las Palmas, 10 24 Nantes, 34 19 c. 74 Tar— Bombay, 80 rns. Genoa, 4 cks. Iloilo, 50 dms. Sierra Leone, 20 kgs. Turpentine— Aguilas, 5 dms. Genoa, 4 t. 13 c. 3 q. £5 Naples, 3 17 1 87 Yarnish— Genoa, 3 cks. 2 cs. Manila, 4 Rotterdam, 4 Madras, 10 Malta, 1 bx. Smyrna, 10 dms. White Lead— E. London, 8 kgs St. John's, N. Id., 80 Zinc Chloride— Bordeaux, 5 t. £29 Bombay, 22 14 c. 2 q. 480
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THE CHEMICAL TRADE JOURNAL

AND

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Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE NEW AMERICAN TARIFF.

THE new Tariff Bill which has been the cause of so much political strife in the States during the past eight months has at length passed into law. As was anticipated, the measure has not been signed by the President, who is evidently much disappointed with the Bill.

From the British manufacturer's point of view, however, the new Bill is a great improvement upon the McKinley law, though as matters stand even at present the new tariff is sufficiently high to place the measure on a level with the tariffs of other European countries which pose as protectionists.

Nevertheless, the bulk of the changes under this new law are favourable to English manufacturers as compared with the old charges.

While a good many articles have been removed from the free list, and others, like sulphate of ammonia, suffer an advance in duty, still some articles of considerable importance have been transferred into the free list, the most notable instance as far as the chemical trade is concerned being bleaching powder. Among other items on the free list, sulphuric acid, which is now admitted duty free, provided the country importing the article does not impose a tax on vitriol exported from the States, Epsom salts, salt cake, and sodium may be noted. In connection with articles which have had their duty lowered, bichromate of potash has been reduced from 32 to 25 per cent. Castor oil has also been subjected to a material reduction from 80 cents to 35. Coal-tar dyes are to pay 25 per cent. in lieu of 35 as formerly, and all tar is free, as well as tar products which are not dyes. Mercurous chloride, again, now stands at 25 per cent., instead of 35; and glycerine, whether crude or otherwise, shows a reduction of about a third.

Another feature of the new measure is the freeing of alcohol for use in the arts and manufactures. This long-looked-for consummation has only been attained after many reverses and fruitless endeavours without number. Its attainment is, therefore, all the more satisfactory to those interested, though it looks like meaning the death of the wood-alcohol industry. The matter, though virtually settled, is not quite done with even yet, for, as already notified in these columns, there is a measure on foot to repeal this section. The general opinion, however, seems to be that it will never pass the Senate.

The position of sulphate of ammonia seems to be surrounded with an air of uncertainty. It figures in the Act as being subject to a duty of 20 per cent., *ad valorem*. A study of the free list, however, reveals a possible loop-hole for this article, for in clause five hundred of the Act, section two, which forms part of the list of articles on which no import duty is to be charged, we find "guano, manures, and all substances expressly used for manure. There is no mention of such sub

stances being otherwise provided for, so the point might be worth testing, though we fear the general clause, at the beginning of section two, would be construed as applying. No doubt about nitrate of soda, however, can exist, as it is specifically stated as being duty free.

PETROLEUM IN BURMA.

According to recent reports from Burma the newly-developed petroleum field about Minbyn seems likely to prove of considerable value. It sounds rather anomalous that the task of developing the petroleum industry in Burma should devolve upon the South Australian Petroleum Fields Company, but such is the fact.

It seems that petroleum working in Australia has not proved a success by any means, at all events upon the property owned by this company. As they had property in Burma, however, they have during the past year devoted their energies to developing their Burmese holdings, the attempts to obtain oil in Australia having been abandoned.

As the result of the new policy the Company seem to have a good prospect of contributing seriously to the production of petroleum. In many cases the oil has been reached at a comparatively small depth, while they are able to dispose of all they can produce at 3 rupees per maund. It certainly must be admitted that if the production of petroleum can be carried on so as to pay its way when petroleum is so hopelessly cheap as at present, there is a reasonable prospect of success in the time to come, since the price of the article is almost sure to advance in the near future.

CHEMICAL PERFUMES.

ALMOST all the natural perfumes are of vegetable origin, and are derived from the treatment of flowers and fruits. In this way are obtained the aromatic essential oils of rose, mint, anisi, santal, thyme, cloves, etc., and the perfumes of the violet, iris and jasmín. Musk is the only important perfume that is of animal origin.

For a long time now, however, the odour of fruits has been imitated with the aldehydes and ethers of fatty acids, such as the acetates, valerianates, benzoates, salicylates and butyrates of methyl, ethyl and amyl, which, mixed in definite proportions, recall the odour of strawberries, raspberries, apples, pears, etc. The following are two examples of such mixtures:—

PERFUME OF THE PINE APPLE.

	Grams.
Chloroform	10
Aldehyde	10
Butyrate of ethyl	50
Butyrate of amyl	100
Glycerine	30
Alcohol, 100°	(litre) 1

PERFUME OF THE APPLE.

Chloroform	10
Nitric ether	10
Aldehyde	20
Acetate of ethyl	10
Valerianate of amyl	100
Glycerine	40
Alcohol, 100°	(litre) 1

The aroma of rum and cognac and the bouquet of wines have also been reproduced artificially. We shall not dwell upon the danger that accompanies the use of these products in a large quantity when they are mixed with beverages and alimentary substances. We shall occupy ourselves here more particularly either with products like those which we find in nature, such as vanilline, or with perfumes, such as musk and the odour of violet, which are designed not for alimentation, but for perfumery properly so called.

Among the aromatic products employed as perfumes we may first mention methylsalicylic ether, which reproduces the oil of wintergreen. The oil of bitter almonds, too, has been frequently replaced by nitrobenzene. Nitrobenzene, as regards composition, is absolutely different from the oil of bitter almonds, but it resembles it in odour. Benzaldehyde, likewise, has replaced the oil of bitter almonds in certain cases.

Such substances possess but a secondary importance; but vanilline, on the contrary, which reproduces the odoriferous principal of the

vanilla bean, is an object of an extensive and very prosperous manufacture. The first process that gave rise to it was elaborated in 1874 by Messrs. Tiemann and Haarmann. In studying coniferine, these scientists found that it was formed of a glucoside which, under the influence of a special ferment (emulsine) split up into glucose and coniferic acid. This latter, through oxidation, gives vanilline. The coniferine itself, oxidized with a mixture of sulphuric acid and bichromate, furnishes vanilline. It was by this process that it was first manufactured. The method of purification was very simple. Like aldehyde, vanilla possesses the property of forming an insoluble bisulphite combination, which was separated from the mass and afterward decomposed.

Chemically, vanilline is methylprotocatechuic aldehyde.

The arrangement of the benzenic nucleus is of importance, since isouaniline, which is constituted by exactly the same groupings, but differently placed, has no odour. After the formula of vanilline became known, an endeavour was made to employ the neighbouring bodies, to add the groupings that were wanting, and to properly place them with respect to each other. A host of methods was proposed to this effect, in making use of eugenol (De Laire and Tiemann), which was oxidized by permanganate; of eugenol and bromide of methylene (De Boissieu); and of guaicol and pyrocatechine (Tiemann and Reimer). Vanilline is even found in certain natural products, such as the benzoin of Siam, crude beet sugar, asafetida, and opium. A certain number of these processes is employed industrially.

Piperonal or heliotropine is closely connected with vanilline. It is, in fact, the methylenic ether of protocatechuic aldehyde. In order to prepare it, piperic acid is oxidized by permanganate, but it can also be obtained by means of safrol. It is found in the oils of sassafras and shikimal, and can also be obtained from the oil of camphor. Coumarine is the anhydride of ortho oxybenzoic acid. It has been obtained synthetically by Perkin by causing acetic anhydride to react upon the sodium salt of salicylic aldehyde. It is especially extracted from natural products, such as the tonka bean and the "vanilla plant" (*liatras odoratissima*) of the United States.

Spirit of turpentine has likewise yielded a perfume, the terpinol of De Laire. To this effect one can either dehydrate terpene or treat spirit of turpentine directly. This perfume is known under the name of lily of the valley or lilac.

We now come to the two most recent discoveries, viz., the perfume of musk and that of the violet. Natural musk is the product of a secretion of the musk deer, a ruminant mammal that inhabits certain regions of Asia. The perfume is found in a sack which usually contains from 14 to 20 grams of it. It is also found, but in much smaller or even minimum quantity, in other animals, such as the civet, the musk rat, the badger, and the marten. Certain plants, too, often possess the odour of musk. This product is of the highest importance, since it is the base of all artificial perfumes, which sometimes contain considerable quantities of it.

The first process of preparation of a product having the odour of musk was discovered by Messrs. Shaafer and Haffeld, who heated a mixture of dimethyl benzene, isobutylic alcohol, and chloride of zinc, which they afterwards broke up and nitrated. The truly industrial discovery of an artificial musk dates back to 1889, and was made by Mr. Baur, on the occasion of some researches upon the oil of resin.

In order to prepare the Baur musk chloride of isobutyl is made to react upon toluene (methyl benzene) in the presence of chloride of aluminum. We thus obtain isobutyl toluene, which, under the influence of nitric acid, is converted into trinitroisobutyl toluene, which is the somewhat cumbersome chemical name of commercial musk.

There exists, theoretically, a host of analogues and homologues of this musk. A certain number of them have been prepared from xylene, cymene, and the diphenyl and xylol methanes. A large number of such products possess the characteristic odour of musk.

A no less important discovery is that made a year ago by Mr. Tiemann, who reproduced synthetically the perfume of the violet (called ionone) after a series of researches of the greatest interest, from a scientific standpoint.

In order to prepare this perfume we start from citral, which is itself derived from the oil of lemon, or from the oxidation of the alcohols of the formula $C_{10}H_{18}O$ that we find in certain essential oils; geraniol, linaleol, aurantiol, and lavendol. The citral is shaken with acetone and barytes, and pseudo ionone is thus formed. This body is odourless, and in order to render it odorous it is necessary to convert it into ionone, a produce which is very closely related, but which is cyclic, while the pseudo-derivative is of the open chain series. A long series of similar products can be made with other acetones, and these have been studied with the greatest care by Messrs. De Laire and Tiemann.

Messrs. Tiemann and Kruger, on treating orris root with appropriate solutions, have separated various products and, among others, irone, which is the odorous principle of this root, and it was in the wake of these experiments that the synthesis of ionone was made, these two bodies being, in fact, isomeric, and consequently very closely related. *Le Génie Civil*.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of July, 1894, as compared with the same month of 1893:—

ALKALI.				
Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Russia	39,862	14,987	15,909	5,977
Sweden and Norway	6,500	9,049	1,465	1,795
Germany	12,638	11,160	4,391	3,500
Holland	5,987	8,807	1,401	1,995
France	2,800	2,556	1,043	974
Spain and Canaries	21,203	23,442	9,014	9,758
Italy	16,020	14,294	5,747	5,396
United States	149,182	230,267	46,544	51,097
Australasia	15,095	22,257	5,733	7,993
British North America ..	12,625	15,854	3,895	4,626
Other countries	70,656	91,327	25,329	28,282
Total	352,568	444,000	120,471	121,393

BLEACHING POWDER, ETC.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
United States	69,052	55,893	29,315	21,747
Other countries	53,926	43,857	21,065	16,939
Total	122,978	99,750	50,380	38,686

COKE AND COKE-OVEN GASES.

IN a paper by the late R. Soldenhoff on the manufacture of coke, recently read before the Iron and Steel Institute at the Brussels meeting, there is much of interest about the use of coke-oven gases. With regard to the use of the waste gases for raising steam, the author says: "Knowing that in order to generate the gas out of a ton of coal about one-fifth of the equivalent found in coal is required for the coking process itself, while the four-fifths are to be utilised, in the present state of the coking manufacture, for generating steam, the four-fifths give 7,800,000 tons of gas or their equivalent in coal of 40,000,000 tons."

Assuming that a pound of coal evaporates six pounds of water, in practice there is evaporated 240,000,000 tons of water; and knowing also that 36 lbs. of steam are required to produce one-horse power, it is seen that about 7,000,000 horse-power will require about 100,000 Lancashire boilers of 7 feet 4 inches diameter, capable each of generating 60 horse-power. Roughly speaking, there are 2,000,000 coke ovens in this country to generate this power, which would mean twenty coke ovens per each boiler. Knowing, on the other hand, that the greatest number of ovens used for heating a boiler is 15, the number of ovens required for heating the above number of boilers would be 1,500,000, so that, assuming there are 100,000 boilers heated by coke ovens, there would be half a million of ovens wasting their gases, which would mean a waste of gas equal to one-fifth of the quantity to be utilised for heating purposes, and expressing it in the equivalent of coal would mean 10,000,000 tons of coal wasted yearly.

This way of utilising the gases was for a long time recognised as not being satisfactory—the first efforts having been made in Belgium and France to save them from destruction, in order to extract from them ammonia and tar. No doubt the gasworks' practice of extracting tar and ammonia has been an example to the coke manufacturer; equally has it been so to the Scotch ironmasters in their blast-furnace working. The first efforts, however, in that direction have not at all been a success. The coke was of very poor quality, and the by-products difficult to dispose of. We must remember that only about thirty years ago the usual way in which the gasworks could get rid of their tar was by burning it as fuel, while the ammoniacal liquors passed into the sewers.

Though the erection of coke ovens has advanced rapidly in Germany, little comparatively has been done in this country. The total number of by-product ovens in use does not exceed 200, including 40 of the Semet-Solvay type at the works of Messrs. Brunner, Mond and Co., Limited.

In Great Britain it is computed 35,000,000 tons of coal are made into coke. Therefore about 400,000 tons of sulphate of ammonia and about 900,000 tons of tar are lost to the community. Putting the sulphate of ammonia at the present price of £10. 10s. per ton, we get the value of £4,200,000. Deducting from this amount 33 per cent. for

working expenses, it leaves as net value £2,800,000. Putting the value of tar at 32s. 6d. per ton, we obtain £1,462,500. Therefore we waste yearly £4,262,500.

Further it is stated that after the condensation of gases, that is to say, extracting tar and ammonia and utilising the heat required for the ovens, sufficient heating power is left in the gases to the extent of being able to evaporate not less than one ton of water per every ton of coal charged into the ovens, and by gases otherwise escaping. The heat required for coking purposes is the same here as what is wanted in ordinary coking. This I have estimated to be equal to 1,950,000 tons of gas, or equal to 10,000,000 tons of coal.

Mr. Soldenhoff, in speaking of the nature of the coke produced by recovery ovens, says, to avoid any misapprehension that as nothing has been said about the quality of coke, I am timid on that subject, especially knowing that very likely the majority of you are in favour of beehive-oven coke. In my opinion the quality of coke made in the Coppée ovens or in by-product ovens, if not superior, is equal in all respects to beehive coke.

There is very little doubt in my mind that the heating power of the gases of ordinary coking could be utilised in more than one way, and it occurs to me that it could be utilised, for instance, for the destruction of solid sewerage; and I do not see why in large mining centres, where the population is very dense, and where a large number of coking installations are in existence, the waste heat could not be utilized for sanitary purposes. It is so much more important that the moisture in the solids, which carries a great deal of ammonia with it, could be collected and made into sulphate of ammonia and utilised for fertilising purposes. Some years back I made some experiments with reference to this matter, so that I am not speaking on the subject as altogether a stranger to it.

TABLE OF RESULTS OF COKE MADE IN BEEHIVE, WELSH, AND COPPÉE OVENS.

Where the Coke comes from.	Volatile matter of the coal used.	Washed or not.	Ash in Coke.	Class of Oven in which Coke made.	Density of Coke.
	Per cent.		Per cent.		Per cent.
Durham	—	—	9.37	—	1.25
Glamorgan Coal Co. (S. Wales), Llwynpia	22	Washed	4.55	Beehive Welsh (rectangular)	1.11
Glamorgan Coal Co. (S. Wales), Llwynpia	22	Do	4.20	Coppée	1.36
St. Helen's Colliery, Cumberland	40	Do	7.25	Coppée	1.23

TIPS FOR TRADERS.

IN connection with the exhibition which is to be held at Bordeaux in 1895, Her Majesty's Consul has drawn up a list of articles which might most advantageously be exhibited by British manufacturers. We select the following chemicals from the list—oxalic acid, oxides of iron and lead, carbonates of potash and magnesium, bicarbonate of soda, caustic soda, sulphates of ammonia, copper and aluminium, chromates of sodium and potassium, soap, manures sulphur, carbon disulphide, petroleum, and the products of the distillation of coal.

JAPAN produces a mulberry tree, the fibre of which is well suited for the manufacture of paper, being about equal to esparto grass. Its introduction into India is interfering with the use of babui grass, largely grown for paper making purposes in India.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is as well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

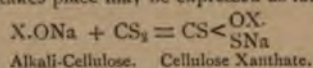
VEGETABLE MANURES may not be imported into Tunis now. This in no way affects the importation of artificial mineral and chemical manures, sulphate of ammonia and such like. The step has been taken as a preventive measure against phylloxera.

UNWASHED WOOL imported at Madrid is now admitted as such only when it loses 50 per cent of its weight on washing with carbon disulphide. Formerly a loss of 10 per cent sufficed.

BARIUM DIOXIDE imported into the United States of America is subject to a duty of 25 per cent, *ad valorem* under the 76th paragraph N. T.

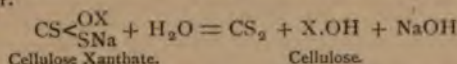
COMMERCIAL CELLULOSE DERIVATIVES.

IN a paper read by Mr. C. Beadle before the Chemical Section of the Franklin Institute, an account of the preparation of certain derivatives of cellulose is described. One of the most interesting class of derivatives is that formed by thiosulpho carbonates of cellulose. In describing these products as discovered by Messrs. Cross, Bevan, and Beadle, the latter says: We found that when so-called "alkali-cellulose" is treated with carbon bisulphide vapour, at the end of three hours the mass will have changed to a deep golden yellow. This, when treated with water, swells up to a gelatinous mass and finally dissolves, forming a very viscous solution, about the colour of treacle. The reaction that takes place may be expressed as follows:—



where X represents the reacting unit of cellulose. We have then cellulose-xanthate formed, which is soluble in water, with the formation of the solution as above described.

This solution lasts only for a limited time. In a few days it is found to have set to a solid coagulum which is no longer soluble in water. The action which takes place is simply a reversal of the above, or a dissociation of the xanthate, which is readily brought about in presence of water.



The tendency of the solution to coagulate is conditioned by the amount of water present. Dilution, as might well be supposed, has been found to favour dissociation. The life of the solution is then greatest when the minimum quantity of water is used to bring the xanthate into solution. The colour of the solution is chiefly due to the presence of thiocarbonate of soda, which is formed from some of the CS_2 and $NaOH$ splitting off by gradual dissociation.

Sulphuric and most mineral acids immediately precipitate the cellulose with the evolution of sulphuretted hydrogen. Acetic and many weak organic acids evolve sulphuretted hydrogen without precipitation of cellulose, the solution becoming nearly white and colourless, but much more liable to rapid coagulation. Bisulphite of soda or sulphurous acid decolorises the solution without the evolution of sulphuretted hydrogen if carefully added. Zinc sulphate or chloride precipitates the zinc salt in horny flakes, which can be washed and easily redissolved in weak soda. Alcohol or brine precipitates the cellulose as thiocarbonate, which can be washed free from by-products and dissolved in water.

This solution is very viscous, and very readily undergoes coagulation. The viscosity of the crude solution depends upon many conditions. It is possible to prepare two solutions from the same cellulose, one containing five per cent. and the other twenty per cent. of the same viscosity. If the cellulose has been treated with caustic soda some weeks before treatment with CS_2 , the viscosity of the solution is very much reduced. Raising the temperature of the alkali-cellulose has the same effect. A solution of greatest viscosity is got by treating with CS_2 immediately after mercerising. This gives us, when cotton is used in a seven per cent solution, a viscosity equal to glycerine, measured by rate of flow.

The determination of the specific gravity of solutions of various strengths is not very satisfactory, but it clearly indicates that the specific gravity decreases with decreased viscosity, due to increased age of alkali-cellulose.

Effect of Temperature.—Increased temperature shortens the life of the solution by inducing coagulation. A solution that would last forty days at $35^\circ F.$ would coagulate in twenty-five days at $47^\circ F.$, or in six days at $65^\circ F.$ When a solution is spread on the surface of glass and exposed to a temperature of about $250^\circ F.$ the coagulation takes only a few minutes. This, when washed free from by-products, comes off the surface as a transparent film.

Effect of Mass.—Mass has a great influence on coagulation; a small sample of 30 grams coagulates much sooner than a 400 pound lot of the same solution when both are kept at the same temperature.

Coagulation is induced by exposure to the air, probably due to the presence of carbonic acid, which is found to aid dissociation of the cellulose thiocarbonate, by forming sodium carbonate and liberating CS_2 .

Properties of Coagulum.—A solution when once coagulated, although it retains the water required for its solution, is no longer soluble. If a coagulum contains much under ten per cent. of cellulose, it will contract on itself, retaining the form in which it was cast, and separating from the water and soluble by-products until it contains about ten per cent. of cellulose and ninety per cent. of water. On the other hand, if the coagulum contains a high percentage of cellulose it will expand and take up water. This coagulum will not dehydrate by

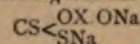
treatment with alcohol. At this point it remains in a state of equilibrium so long as it is kept immersed in water. When the washed coagulum is taken out of the water and placed in air, by a gradual process of integration, the mass gradually contracts on itself until the whole of the water is eliminated. The resulting material is a hard, compact, horny substance, having a specific gravity of 1.5.

The crude thiocarbonate solution, when decolorised by the addition of reagents, shows some marked peculiarities. When acetic acid is added, sufficient to render the solution just acid, on standing for some time the solution will have increased in viscosity and developed a marked alkaline reaction. The acetic acid decomposes the sodium thiocarbonate present in the solution, and, as dissociation proceeds, CS_2 is given off and caustic soda formed. If a non-viscous solution has been used, the viscous form can be induced by this method. The solutions coagulate a few hours after the addition of the acids unless kept very cool, and are more stable in dilute than in strong solution. A fresh coagulum from a strong solution can be rendered soluble by the addition of water and agitation, and the life can be extended for a considerable time by adding successive quantities of water at regular intervals and agitating. Alum may be used in place of acetic acid.

When sulphurous acid solution or sodium bisulphite is used in place of the above, the behaviour is somewhat different. The sulphur compounds are, for the most part, converted into thiosulphate, and we have a more permanent solution. The influence of mass is here very much marked. On placing the solution in tubes of different diameters, the smallest coagulates first, and so on, in order of diameter. The life of the solution is about thirty hours in small quantities, but it can be kept for six days in large quantities at the same temperature. It is more stable in dilute solution, and the fresh coagulum is readily dissolved by ammonia.

The product got by purification with alcohol or brine is found on analysis to contain less sulphur and soda than the crude material, and by repeated treatment these may be got down to one-tenth their former quantity, but are found to bear about the same ratio to each other. As the S and Na_2O diminish, the solutions are found to be more viscous and less stable. It appears that the reacting unit of cellulose is not constant, and that the molecule may be at least $4(C_{12}H_{10}O_{10})$. The fact that two parts of cellulose in 1,000 parts of water, as a decolorised solution, will coagulate without change of volume, leads us to believe that the molecular weight of this cellulose is very high.

When a crude solution is treated with benzoyl-chloride, the cellulose is eliminated as a cellulose-benzoate. In view of this fact, we may be right in ascribing the following formula to the compound:—

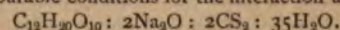


X representing a cellulose residue of variable molecular weight, and reacting as an alkali cellulose.

COMMERCIAL PRODUCTION.

In preparing large quantities of this cellulose compound, we take a moist, disintegrated cellulose and incorporate it with strong caustic soda solution by agitation under considerable pressure. The cellulose, when acted upon by the soda, swells up and absorbs all the solution, becoming flaky. This is passed through a sieve in order that it may be of uniform density and occupy as much bulk as possible. This process takes about thirty minutes, and 150lbs. of mercerized product is obtained at each mixing. One cubic foot of the material ready for treatment with the CS_2 weighs about 15lbs. This is brought in contact with CS_2 vapour when the mass has been carefully raised to $80^\circ F.$ and kept in agitation. The reaction develops enough heat to raise the temperature to $105^\circ F.$, when at the end of one hour the reaction is complete. The material still retains its former structure, but has changed in colour to a golden yellow. It is discharged into, and carefully mixed with, its own volume of water. In seven hours the mass has become a homogeneous stiff dough. To obtain a clear solution from this, it is passed, together with its own weight of water, through a centrifugal pump, and to free it from mechanical impurities it is passed under pressure through a filtering medium. The amount of caustic soda required is expressed in its simplest terms by the ratio $C_6H_{10}O_5 : 2NaOH$. The proportion of CS_2 used is expressed by the ratio $CS_2 : 2NaOH$.

The most favourable conditions for the interaction are:



THE PRODUCTION OF CONTINUOUS FILMS.

When dehydrating agents, such as brine or alcohol, act on the cellulose thiocarbonate solution, the effect produced is dependent upon the constitution of the solution. Thus, if a fresh solution is used and brine added, the flocculent precipitate obtained is entirely redissolved in water. If the solution has been made some days and approaching the point of coagulation, the precipitate so formed is during precipitation converted into insoluble cellulose. If some of this solution is spread as a varnish on a glass plate, and immersed in brine, the cellulose can in a few seconds be stripped off the surface in the form of a film. We endeavoured

voured to take advantage of this for the production of continuous films, and after erecting six machines, each of which was a step in advance of the last, we devised a machine which produces and reels a film in a continuous web. The thick solution, which has been kept till on the point of coagulation, is spread on the surface of a revolving cylinder, half immersed in a bath of brine. The solution is spread by means of an adjustable doctor, attached to side decks which regulate the width of the film required. The film as it leaves the brine is stripped from the cylinder and passed through a series of vats for washing, decolouring, dyeing and finishing. It can be dried by passage over steam cylinders and reeled. The film when in the web, before passing on to the drying cylinders, can be grained or stamped by rolls carrying designs in imitation of any surface. Cellulose films prepared by this method have an affinity for many aniline colours not shared by any other form of cellulose. Its power of absorption of various substances when in the half-finished state enables us to give to the finished product a large range of properties.

It becomes dyed so readily with some aniline colours without a mordant, that the operation can be done in the web as it passes over the machine. When dried and finished it becomes resistant and loses considerably its chemical activity.

COMMERCIAL PRODUCTION OF THICK FILMS.

(1) From crude coagulum. In order to prepare thicker films the solid coagulum is cut up into pieces of any desired thickness. These are washed to free them from by-products, and treated for some time under pressure, and calendered. By this means we are able to get a large range of products. Calendering has a marvellous effect on the films, if they are not thoroughly dehydrated. The material of the film flows under great pressure, increasing the area and decreasing the thickness of the film, and the annealing it gets very much improves its texture and strength. We have recently found it possible to forego the process of washing out the by-products, giving us films sufficiently pure for some purposes, by the following process:

(2) From decolourised coagulum. To the crude thiocarbonate solution is added a weak solution of sulphurous acid, which has the effect of decolourising the by-products by converting them for the most part into sodium thiosulphate. The coagulum formed from this is a semi-opaque neutral jelly. This is cut up into pieces of the size required, and each piece is submitted to a process of annealing under pressure which results in the dehydration and separation of the cellulose from the by-products. It has lately been found possible to pulverize the solid decolourized coagulum and cause it to go together into compact sheets under pressure; also to force several sheets together into one solid compact sheet. We had failed with all other mixtures to obtain a pulverized substance that would go together under pressure, and had given it up thinking it could not be accomplished, when the above mixture was found to answer. It is very difficult to explain this peculiar behaviour of a cellulose coagulum, and why the various mixtures should behave so differently. We recognise that we are dealing with a compound in a state of very unstable molecular equilibrium and consequently very susceptible to all sorts of outside influences. The effect of pressure in promoting chemical change has recently been recognised. We think that we have here a marked instance of what pressure will do in effecting a molecular change. By changing the modes of attack on this coagulum various products are obtained, differing widely among themselves in their general properties. We have found it possible to stamp boxes direct from the coagulum, embossing and dehydrating them in one operation.

Films may also be produced by taking a continuous veneer from a revolving cylinder of the dehydrated substance.

Inertness of the Dehydrated Product.—This is well exemplified in its application to woven fabrics. Cotton and linen goods behave very differently in regard to their affinity for, and power of fixing, these cellulose derivatives. When the gray linen is passed through a weak solution of cellulose thiocarbonate it is easily fixed by the film. It appears to penetrate the cell-wall and build itself up in the fibre. The cellulose so fixed is not removed by the various chemical treatments the cloth afterwards receives. The character of the solution used has a great effect on the finish of the cloth. It is possible to obtain a very marked difference in the feel by the addition of only two per cent, or to add to the cloth as much as 25 per cent. without making any marked difference. In all cases the cellulose derivative shows itself less acted upon by chemical treatment than the fibre of the cloth.

Properties and Constitution.—Its inertness is shown also in its behaviour with various reagents. Where it reacts it does so in a different way from that of cotton and linen cellulose. Its carbon percentage is somewhat lower and its weight is somewhat greater than the cotton cellulose from which it is prepared. The original molecule appears to have undergone hydration in the ratio $2C_{12}H_{20}O_{10}$, H_2O . The hygroscopic moisture varies from 10 per cent. to 15 per cent., according to the method used for its production. It is turned blue by iodine solution.

ANALYSING FURNACE GASES.

AN interesting apparatus has been designed by Mr. Uehling, of Birmingham, Alabama, U.S.A., in connection with the rapid analysis of gases. He has obtained a patent for his invention, but its practical value has yet to be proven.

The principle involved in the invention depends on the law of the flow of the gases through a minute opening or aperture, preferably in a very thin plate or diaphragm, by virtue of which any gas being forced through a separated pair of such minute apertures by a constant suction or pressure will have a certain density between the apertures, which will remain constant for a constant quantity of gas passing through both apertures, but will vary, if the quantity of gas be varied between the pair of apertures and it is by these variations that two constituents of a gas may be determined and indicated.

The apparatus consists of one or more absorption tubes and connections, according to the number of constituents to be determined, the inlets of which tubes are connected with the source of gas to be analysed and the outlets with a partial vacuum of constant tension; both inlet and outlet are provided with minute apertures. Two absorption tubes are filled loosely with broken glass or other non-corrodible fragments. With the top and bottom of each of these tubes are hermetically connected respectively vessels, each provided with a stop cock. These vessels are filled with solutions of sufficient capacity for absorbing the constituent of the gas, the percentage of which is to be determined in the absorption tube with which it is connected. As an example of one suitable solution for the determination of carbon dioxide, a solution of caustic potash may be used, and for carbonic oxide gas, a hydrochloric acid solution of cupreous chloride.

In the continuous and automatic operation of this apparatus, the inlet pipe is connected with the gas main or other source of the gas to be analysed; and the outlet is connected with a suction apparatus of any approved form set so as to produce and maintain a partial vacuum of constant tension, equivalent for instance to 20 inches of water, more if necessary, and less if found sufficient. This suction will cause a stream of gas to flow continuously through the apparatus, or at more or less prolonged intervals, if that should be sufficient. But as long as the suction acts, and the gas inlet is open the apparatus will indicate the composition of the gas as stated.

The absorbing liquid is contained in the upper vessel and falls drop by drop as slowly or fast as required, regulated by the stop cock, into the absorption tube, where it meets the ascending stream of gas to which it exposes the greatest possible surface as it percolates through the broken glass in its descending course to the lower vessel, and on its way absorbs the constituent to be determined. By virtue of this absorption, the tension in the tube, that is, the tension between the two apertures, is reduced proportionately to the quantity of gas absorbed, and hence the degree of tension shown by the manometer connected with the absorption tube is a measure of the constituent sought, and as the flow is continuous, the indication must also be continuous, and as the quantity of absorbable gas rises, so will also the tension vary, and thus become at once visible.

This invention is adapted for use with chimneys where it will show when too much or too little air is given, whether the fire is too thick or too thin to give the most economical result and effect a saving in fuel.

THE GAS SUPPLY OF LONDON.

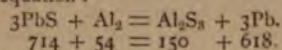
THE quality of the gas supplied to the City of London for the week ending August 18th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted. hydrogen
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'33	8'70	0'46	Nil.
South Metropolitan Gas Co.	6	16'85	9'15	0'50	Nil.
Commercial Gas Co.	2	16'25	7'30	0'30	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

PREPARING SULPHURETTED HYDROGEN FROM ALUMINIUM SULPHIDE.

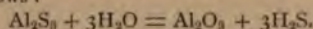
It has long been known that sulphide of aluminium is decomposed by water into oxide of aluminium and sulphuretted hydrogen, but it is only recently that this compound has been suggested as a source for the supply of sulphuretted hydrogen for practical purposes. The difficulty of preparing the sulphide has stood in the way of adapting it for this purpose. The researches of Mr. C. Vautin, however, have provided a method of manufacture which has proved so successful. By his process the sulphide is prepared from metallic aluminium by mixing it with galena in crucibles and heating the mixture to a red heat in a reverberatory furnace with a neutral atmosphere. The reaction is represented by the equation:



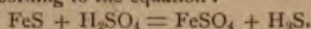
In practice it is found advisable to use an excess of aluminium in order to help the lead to take up the impurities in the galena. When the reaction is completed the sulphide of aluminium is found at the top in a distinct layer, while the lead and impurities are at the bottom. It is advisable to use galena as free as possible from silver, because it is not possible to refine the lead residue owing to the presence of aluminium in it. At the present time nothing is done with the lead residues.

The amounts of galena and aluminium used in preparing the sulphide of aluminium, and the lead remainder, are all made clear from the molecular weights placed underneath the equation of reaction. It will be seen that a pound of aluminium produces nearly three pounds of sulphide; in practice, when an excess of aluminium is used, the pound produces about 2¾ lbs. of the sulphide, or rather less. With aluminium at, say, 2s. 6d., or 60 cents per pound, a very fair margin of profit is left by selling the sulphide at 2s. 6d., or 60 cents, per pound can.

When the sulphide is used for preparing sulphuretted hydrogen the reaction is as follows:



Calculating out the atomic weights it will be seen that 150 parts by weight of sulphide give 102 parts by weight of sulphuretted hydrogen, so that the pound of Al_2S_3 gives nearly 11 oz. of H_2S , or, to produce one pound of H_2S it requires 1.47 lbs. of Al_2S_3 . The usual way of preparing sulphuretted hydrogen is to treat sulphide of iron (FeS) with sulphuric acid, according to the equation:



That is, 88 parts by weight of sulphide of iron, and 98 parts by weight of sulphuric acid are required to produce 34 parts by weight of sulphuretted hydrogen; or to produce 1 lb. of H_2S it requires 2.59 lbs. of FeS and 2.9 lbs. of H_2SO_4 , as compared with 1.47 lbs. of Al_2S_3 with no acid. The aluminium sulphide method is, therefore, for laboratory purposes, just as cheap and much more convenient.—*Eng. and Mining Journal.*

BEECH AND PINE TARS FOR SOAP.

THE special cleansing action of tar soap for certain rough toilet purposes is probably as well defined as is that of gall soap for removing spots from cloth, and in this respect there may be little to choose as between pine tar and birch tar, both possessing this cleansing property—coal tar being considered out of date nowadays for soap-making purposes.

But as regards the disinfecting power of such soap, there is—according to recent investigations—a great difference in the use of pine tar and of birch tar. Nencki reports in the *Pharm. Ztschr. Russ.* that, from experiments he made, he finds that pine tar (from *pinus sylvestris*) has double the disinfecting power of birch tar, owing to the presence of larger proportions of kresol, guajacol, etc., while in birch tar compounds of the paraffin series are more abundant.

For the purpose of distinguishing beech tar and pine tar Hirschsohn recommends the following process:—At 20° C. (68° F.) beech tar has a specific gravity of 0.925–0.945; while pine (fir) tar, at the same temperature, is 1.02 to 1.05, the one floating in water, while the other will sink if entirely freed of air. Beech tar, agitated with 10 volumes of water, abandons none of its colouring matter, though the water, while remaining perfectly colourless, acquires a markedly acid reaction. The addition of perchloride of iron to the water produces a green colour reaction. If 2 drops of aniline and 4 drops of hydrochloric acid be added to 5 ccm. of the water, a yellow colour reaction results. If 1 volume of beech tar be agitated with 20 volumes of petroleum ether and filtered, a clear brownish yellow liquid is obtained, which does not become green when agitated with a diluted solution of copper acetate.

The aqueous extract of fir tar is, on the contrary, coloured a marked yellow, is of acid reaction, but becomes red on the addition of FeCl_3 (instead of green). Treated with aniline and HCl , the colour passes to red. The petroleum solution, agitated with copper, becomes green. Finally, when pine (fir) tar and alcohol are agitated together, the former takes up no colour. If there is any muddiness, or even cloudiness, you may be certain that the tar is contaminated with beech tar, kerosene products, coal tar, &c.

Trade Notes.

A LABORATORY FOR URUGUAY.—The Minister of Finance of the Republic of Uruguay has proposed the establishment of a State Chemical Laboratory.

THE CONSUMPTION OF PETROLEUM.—Stocks of petroleum decreased in July by 511,294 barrels to 9,859,914 barrels. The average daily production fell off from 78,692 barrels to 78,500 barrels.

TRAINING DOCTORS IN ANALYSIS.—We learn that the Government of India has under consideration a scheme for the constitution of a separate Chemical Department for the whole of India, for the purpose of training medical practitioners as chemical analysts.

PETROLEUM AGAIN.—Every week seems to bring fresh evidence as to the want of a safe burning oil for use in this country. Last week Wm. Hooper, a blacksmith, died at Rochester, from injuries caused by a lamp explosion. In his official report of Wednesday morning last, Captain Simonds gives the details of four fires in London, all of which were caused by mineral oil lamps being upset.

EXPECTED REVIVAL IN THE CHEMICAL TRADE.—A marked increase of activity is being manifested at Liverpool docks, consequent on the American Tariff Bill, and shipowners are looking forward to a great revival of trade. It is expected that within the next few weeks the various chemical works in the Widnes and Runcorn districts, which have recently been on short time, will be exceptionally busy.

EXPLOSION AT A CHARCOAL WORKS.—Last week, an explosion occurred in a shed at the Animal Charcoal Company's works, New Gravel-lane, London, E. The roof of the building was blown off and the premises set on fire. The machinery and plant inside were completely destroyed, but the fire was quickly extinguished. The explosion is supposed to have originated in a bone extractor.

A LARGE CARGO OF WOOD PULP.—On Friday, last week, the steamer *Fes* arrived at Manchester, *via* the Canal, with a full cargo of 6,021 bales of wood pulp. The charterers and shippers are Messrs. A. Wertheim and Co., of Hamburg, who are represented in Manchester by Mr. C. Reichenbach. It is said that Messrs. Wertheim and Co. intend to bring nearly the whole of their traffic to this district *via* the Canal.

PROPOSED WATER GAS PLANT FOR BELFAST.—Last week the Gas Committee of the Belfast Corporation considered the question of extending the manufacturing plant at the works. They resolved to recommend the Council to erect water-gas plant, instead of coal retorts, at a cost of about £18,500. The expenditure will ensure a daily production of 900,000 cubic feet, and will cost a great deal less in labour and fuel than for ordinary coal gas.

THEY ALL WENT DOWN.—A disaster of a serious and singular character occurred in Goole Docks early on Monday morning, when over seventy iron compartment boats belonging to the Aire and Calder Navigation Company, which contained coal, sank in the Germany Dock. It is supposed that one of the boats became leaky and sank, dragging down the remainder which were attached. It is estimated that the quantity of coal deposited in the dock is about 3,000 tons.

HYDROCHLORIC ACID FOR HERB BEER.—An inquest was held at Loughborough, on Monday, as to the death of Mary Ann Dent, 63. The evidence showed that deceased, a charwoman, was at work at the residence of a plumber, and drank some hydrochloric acid in mistake for herb beer. The bottle was labelled "poison." After being an inmate of Loughborough Hospital the woman was discharged apparently cured. Dr. Pike stated that death was due to secondary ulceration through drinking the acid. Verdict, accidentally poisoned.

OPTICAL AND PHOTOGRAPHICAL EXHIBITION.—An exhibition of all matters connected with optics and photography will be held at the Royal Aquarium from September 11th to October 6th. It will be, in many respects, the most important display of the kind ever held. Amongst the novelties will be illustrations of the process of phototelegraphy, which has been recently invented by Mr. Amstutz, of Cleveland, Ohio. With this wonderful discovery it is possible to make an engraving of any photograph, over any length of wire, by means of the ordinary appliances to be found in a telegraph office. An appeal is made by the Aquarium management for the loan of any curiosities or objects of interest, either from a photographic or optical point of view. The regular programme, which is at present very strong, will be continued in its entirety during the Exhibition.

SALE OF THE CARRICKFERGUS SALT WORKS.—The Rocksalt Mine and Salt Works at Carrickfergus, near Belfast, which cover about 18 acres, have been sold at Edinburgh for the sum of £7,500.

THE ALYN TINPLATE WORKS WILL NOT STOP.—The notice posted up by the proprietors of the Alyn Tinplate Works, Mold, of the stoppage of the works has been withdrawn, and it is announced—greatly to the satisfaction of the workmen and the locality generally—that the works will continue to be carried on.

BRAZILIAN MANGANESE.—According to advice in the *Journal do Commercio*, Mr. Francisco Couta de Silva, to whom the Governor of the State of Mato Grosso is granting a concession for the working of the iron and other minerals in the very rich Urucum Hill zone, has in his possession a fine specimen of manganese, which abounds profusely in that locality. Great hopes are entertained of the good results of the concession, both for its holders and the locality generally.

WAREHOUSE FIRE IN MANCHESTER.—On Wednesday evening last, a serious fire occurred at the warehouse of Messrs. Meyerhoff, Marx and Simonsen, Dickenson-street, Manchester. The conflagration was one of the largest which has occurred in that city for a long time. Damage was done to the adjoining premises of several firms. The premises of Messrs. Bock and Robertson, agents for the Badische Anilin und Soda Fabrik, were among those slightly damaged by fire and water.

THE AMERICAN TARIFF.—Mr. Carlisle has decided that the benefits of the new Tariff Act extended to all imported goods held in the custody of the Customs authorities on the 28th ult., whether they are unclaimed on board ship or in process of transportation. He has also furnished the revenue collectors with a list of the countries which levy a duty on salt. This list includes Austria-Hungary, British India, Bulgaria, Denmark, Finland, France, Germany, Holland, New South Wales, New Zealand, Ceylon, Russia, Servia, Spain, and Switzerland. Imports of salt from these countries will have to pay a duty of 8c. per 100lbs.

THE "CORDITE" APPEAL.—It is stated that the Nobel Company have given notice of appeal to the House of Lords against the judgment in the Cordite case pronounced by Mr. Justice Romer and unanimously affirmed by the Judges of the Appeal Court. Mr. Maxim is also desirous of fighting a claim for infringement of one of his patents for the production of smokeless powder. He has asked and obtained permission to proceed in the same manner as the Nobel Company, *i.e.*, by way of what is called a "friendly action," in which Dr. Anderson, on behalf of the Government, will be the defendant.

PNEUMATIC GUNS.—This seems a pneumatic age. The scope for the application of this principle is not limited to cab and cycle tyres, but is applied in a serious fashion to ordnance. The experts who witnessed the trials of the fifteen-inch pneumatic guns at Sandy Hook last week, express astonishment at the results which have been obtained. Dynamite shells were thrown a distance of two miles, and all dropped in a space measuring not more than 120ft. by 30ft., the explosion of the shell in each case raising a small mountain of water. The accuracy of the firing with the pneumatic gun is accounted for by the great facility with which the amount of propelling power applied to each projectile can be regulated. The air capacity is 60 cubic feet, and air is admitted at the gun breach at a pressure of a thousand pounds to the square inch for the extreme range of three and three-quarter miles, and the breach is closed when about 30 cubic feet have been admitted. This amount of air works expansively over the latter half of the gun bore on the same principle as steam when working expansively in the cylinder of an engine.

DIPHTHERIA BACILLI IN CHEESE.—For the first time the germs of a contagious disease have been discovered in cheese. Assistant-Chemist Beebe, of the Division of Bacteriology of the Health Department, New York, has just made a report to Sanitary-Superintendent Roberts, of the examination by him of specimens of cheese seized by Inspector Fuller, and which the State Board of Health reported contained germs of diphtheria. Dr. Beebe found the true bacillus of diphtheria in the cheese. The cheese was made at the dairy of the Star Creamery at Afton, New York. Fifty-one packages, each weighing sixty pounds, were shipped to a commission house in Washington-street, and the entire lot was seized by Inspector Fuller. Dr. Roberts, after receiving the report of Assistant-Chemist Beebe, ordered all of it to be immediately destroyed. Dr. Beebe grew cultures from specimens of the cheese, and thus proved that it contained the true bacilli of diphtheria. The germs were alive in the cheese. The farmer who supplied the milk to the dairy from which the cheese was made was found to have had a fatal case of diphtheria in his family. He milked the cows during the time that the disease was prevalent, and in that way it is supposed, the germs were communicated to the milk.

MESSRS. ADLEY TOLKIEN AND CO., LTD.—This firm has converted its business into a limited liability, with a capital of £15,000, in shares of £10. each. The object of the company is to continue the business of chemical manufacturers and merchants, now carried on at Blackburn Lancashire, by Messrs. G. Adley and F. Tolkein. The subscribers, with the memorandum of Association, will be given next week.

A PECULIAR PARAFFIN LAMP ACCIDENT.—A singular fatality is reported from Oviedo, Spain. A workman and his wife with two children, occupying a small room in a house in the Calle de la Fuente del Prado, went to bed at night and left a petroleum lamp burning. In the morning the husband awoke with a headache, evidently caused by smoke pervading the room. He threw the window open and tried to arouse his wife and children, but all his efforts were in vain. Medical aid was summoned, but the children were found to be asphyxiated by the smoke of the oil lamp and the woman's life was saved only after the most remarkable exertions. There is no explanation of how the lamp came to smoke. It could hardly have been left flaring at bedtime.

THE MANUFACTURE OF EXPLOSIVES.—A circular has been issued by the Home Office to the police in the chief provincial centres pointing out the desirability of exercising special precautions in order to detect the secret manufacture of explosives for unlawful purposes. The document details the various compounds which may be used for making dangerous explosives, and suggests that chemists and others who deal in such ingredients should be communicated with, so that they may be on the alert. The Government have decided to hold an inquiry as to the best means of detecting Anarchists who may begin the manufacture of bombs in this country. The Birmingham Watch Committee has appointed the local explosives inspector and the chief of the fire brigade to attend the Commission.

PRIVATE POSTCARDS.—The new inland post regulations provide that the cards must be composed of ordinary cardboard not thicker than the material used for the official postcard. The maximum size, having regard to the variety of form, must correspond as nearly as may be to the size of the ordinary inland postcard now in use. The minimum size must not be less than 3¼ in. by 2¼ in., and the cards must not be folded. With regard to the address side, the rules differ very little from the rules which relate to the present cards. But the modifications introduced into the new warrant give rather more latitude than is permitted by the warrant which it supersedes. On the address side, which must bear the postage stamp, the sender may add the words "immediate," "forward," "local," and also may attach by gum or paste a small label as at present. Nothing else may be attached on the address side except a postage stamp, and on the reverse side nothing but a receipt stamp. The arrangements, of course, apply also to reply postcards. These regulations come into force after the 1st of September.

THE SHIP CANAL AND RIVER POLLUTION.—Speaking at the last half-yearly meeting of the shareholders of the Manchester Ship Canal Company, Mr. R. Spencer said: I wish to say something on the question of river pollution. I sympathise very much and very sincerely with those people who are concerned in this, as I am a member of a firm which is largely affected. It must be remembered that, while those firms whose works are on the banks of the river are desirous of doing all they can in the matter, though they built their works under the impression that they would be able to discharge into the rivers in perpetuity, yet many of them are restricted as to land. They have not all got land upon which they can build the necessary plant to enable them to dispose of their sewage otherwise, and many of them will have to leave their present sites, or reduce their works, to get land for this purpose. I admit that it is necessary and very proper that the work should be done, but under the circumstances I am sure that some consideration will be shown to them, though the authority which has the matter in hand is very sharp. Well done, Joint Committee.

KILLED BY NITROUS FUMES.—An inquest was held last week touching the death of a labourer at the works of Messrs. Spencer, Chapman, and Co., of West Silvertown. The foreman of the works deposed that he instructed the deceased to repack what is known as a Gay Lussac tower, used for the absorption of nitrous fumes. The deceased commenced the work about a quarter to ten, and witness went to the top of the tower two or three times. The top of the tower would be about 35 feet above the ground. Shortly after two o'clock witness was called to the deceased and found him very unwell, he apparently having inhaled something, and witness had him walked about in the fresh air. The fumes, if any, must have arisen from the old brick work. This tower had been packed with coke on two previous occasions, the last time being about four years ago.—The jury came to the conclusion that the man died from the effects of inhaling a noxious gas, and added that great negligence had been shown by the firm in not having proper ventilation to the tower. They were further of opinion that respirators ought to have been used in accordance with the Factory Act.

REMOVING GREASE SPOTS IN BLEACHING—Amongst the difficulties which bleachers have to confront, stains of lubricating oils and oily threads woven into plain cotton goods are the most troublesome. They resist all bleaching operations, even the lime boil, and can hardly be removed, previously to bleaching by hand, with soap and warm water. Boiling with soap before bleaching is of no avail. The removal of such stains is considerably facilitated by the application of a solution of $\frac{3}{4}$ oz. of best white soap dissolved in two pints of water to which 3oz. acetyl ether and 2oz. of ammonia have been added. The dirty places are wetted and well rubbed with the solution by means of a sponge or white rag, when the dirt and oil are so loosened that it is usually easy to wash off with lukewarm water. It is best to apply this treatment before bleaching, because the bleaching operations have a tendency to re-act upon the oil and change its character so that it becomes more pronounced in colour and more difficult to remove. Then, again, should the process not entirely remove all the oil stain, the little which may be left will be more easily removed in the bleaching operations. Very dark and old oil stains are difficult to remove, but the remedy given above may be tried. Another plan is to wet the places with olive or cotton-seed oil, allow it to soak for some days, and then bleach as usual.—*Text. Merc.*

ANSWERS TO CORRESPONDENTS.

- R. AND F.—They are about the best, as brokers.
 X.—There will be a decline no doubt. It can and should be limited to a reasonable drop. It depends on yourselves largely.
 J. M.—We are always pleased to have such matters brought to our notice.
 K. P.—Yes. There are certain conditions, however, which are imperative.
 J. H.—It will be issued as a complete volume, eventually, when it can be judged more satisfactorily.
 J. R.—We have done as requested.
 P.M.—It is published by Messrs. Liffé and Son, E.C.
 DOUBTFUL.—You can easily see it for yourself.

NOTICES.

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Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are in better demand. Benzol is rather firmer at 1s. 1d. for 90's and 50/90's. There is an improvement in carbolic acid. Crude 60% still remains at 1s. 7d., but 40% crystals are firmer at 5 $\frac{3}{4}$ d. Crude naphtha is also dearer at 5 $\frac{3}{4}$ d. Solvent unchanged. Creosote and anthracene remain about the same. Pitch continues firm at 33s. 6d. to 34s. per ton, f.o.b. East Coast.

Sulphate of ammonia is quiet, and perhaps a shade steadier. Quotations have been very variable during the week. There are indications of an improved demand shortly, which may avert a decline in prices, but the point is rather doubtful. Beckton value is £13. 12s. 6d., London outside makes £13. 15s., Liverpool £13. 11s. 3d., Hull £13. 11s. 3d., and Leith £13. 10s. to £13. 11s. 3d.

MISCELLANEOUS CHEMICAL MARKET.

Business continues moderately brisk, but prices, generally, remain unchanged. Bleaching powder is rather quiet at £7. 10s. nett softwoods, rails makers' works, and £8. hardwoods, f.o.b. Caustic soda sells freely, and prices are firm; current quotations are as follows:—F.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d. nett per ton, 10-ton lots and upwards. Saltcake is still flat, and offering at low figures. Chlorate of potash dull at 6 $\frac{1}{4}$ d. per lb., soda at 7 $\frac{3}{4}$ d. per lb. Nitrate of soda continues steady at 9s. to 9s. 1 $\frac{1}{2}$ d. per cwt. according to quality, but business actually passing is not large. Sulphate of copper slightly firmer at £14. 10s. f.o.b. Sulphur still depressed, and prices are as a consequence low; quotations generally are:—Flowers, £7. 10s. per ton; roll, £5. 10s.; and rock, £3. 15s. per ton, on rails at works. Acetates are in better request, though prices still remain very low. Soda is offered at £14. c.i.f., lead (foreign white) £24. 10s. per ton, nitrate £18. 10s. Acetates of lime, brown and grey, are a shade stronger, and are worth to-day £6. and £10. 10s. per ton respectively. Ammonia salts are unchanged. Yellow prussiate of potash firm at 10 $\frac{1}{2}$ d., and soda at 9d. per lb. White powdered arsenic is in rather poor demand, and price remains £13. 15s., at Garston. Carbolic acids are firmly held, and prices are strong owing to absence of stocks. Crude 60's is ruling at 1s. 7d., and 70's at 1s. 10d. per gallon. Crystal carbolic, 39/40°, 6d. per lb.

REPORT ON MANURE MATERIAL.

There has been more business passing, but prices generally do not show improvement. The quotations for 75/80% Florida phosphate rock remain 8 $\frac{1}{4}$ d. for Baltic, 8d. for Continent, and 7 $\frac{3}{4}$ d. for United Kingdom, but these prices are a shade above buyers' ideas of value, and some concession would be required to induce important business. For South Carolina River rock 6 $\frac{1}{2}$ d. is still asked, but 6 $\frac{1}{4}$ d. is probably nearest value in cargoes c.f. and i. to U.K. Peace River rock is still scarce, and is quoted 6 $\frac{3}{4}$ d. per unit. A large River Plate cargo of bones has been sold. The price is not reported, but it is understood to be at something under what has hitherto been accepted. There is much inquiry for handy cargoes, and anything about 500 tons would no doubt fetch about £4. 12s. 6d. per ton. The continued hardening of exchange has occasioned a further advance in East India bones and bone meal; £4. 17s. 6d. now required for Bombay bone meal, autumn shipment, and this price would probably have to be paid for crushed Kurrachee bones. Common grinding bones are in request at Liverpool at £4. 5s. to £4. 7s. 6d. ex quay. Nitrate of soda is quieter, but prices remain fairly steady; on spot 9s. 1 $\frac{1}{2}$ d. required for fine quality, and 9s. for ordinary. Due and port of call cargoes are worth 8s. 10 $\frac{1}{2}$ d. to 9s., June-July sailings 9s. to 9s. 1 $\frac{1}{2}$ d., and August-September sailings 9s. 2 $\frac{1}{4}$ d. to 9s. 3d. per cwt., all ordinary quality. Nothing to report in miscellaneous material.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The prices have fluctuated but little, and any changes have been of short duration, a situation brought about probably from very limited stocks of oil. The import this week of linseed is 4,031 qrs. principally from the Black Sea ports. East India sorts are being offered at prohibitive rates. Of cottonseed there has been imported 1,093 tons from Alexandria. The principal imports into Hull up to date have been:—Linseed, 308,048 qrs., against 204,594 qrs.; rape-seed, 75,374 qrs., against 35,580 qrs.; cottonseed, 127,586 tons, against 116,999 tons; olive oil, 15,693 casks, against 6,837 casks; rape oil, 5,151 casks, against 4,526 casks; oilcakes, 10,877 tons, against 13,617 tons; tallow, 16,566 cwt., against 19,474 cwt.; turpentine, 13,013 brls., against 11,776 brls. Linseed oil has been firmer, but tone at the close is quiet. Spot offers at 19s. 9d. naked, and same for month; September-December, 19s.; and January-April, 18s. 10 $\frac{1}{2}$ d. Export for the week, 1,280 cwt. Refined cotton oil quiet, at 18s. 10 $\frac{1}{2}$ d. naked, spot, and September-October offering at 18s. 9d.; November-April steady, at 17s 7 $\frac{1}{2}$ d. Export of refined for the week, 2,720 cwt. Castor oil: For first pressure, 2 $\frac{1}{4}$ d. per lb. Spirits of turpentine, 22s. per cwt., in barrels. Cod oil quiet, from £17. to £20. per ton. Sod oil, £16. to £18. per ton. Sperm oil from £26. per ton. Soft soap, 14s. 6d. per cwt. Rosin oil, £6. 10s. per ton. Open flame lamp oil from 1s. 4d. per gallon. Petroleum jelly from £20. per ton.

CAKES.—A quite trade for all kinds, but prices do not give way. Linseed cakes, 95% pure, £6. 15s.; Russians, £6 10s.; oil cakes, £5. 12s. 6d. to £5. 15s. Cotton cakes: Best makes, £4. 5s.; seconds, £3. 17s. 6d. to £4. Rape cakes: Black Sea rape, £3. 2s. 6d. to £3 7s. 6d.; feeding cakes, £4. 10s.

PAINTS.—The trade continues in a satisfactory condition and very little perceptible in falling off in demand. Prices are: Oxide of iron, dry, from £7 per ton. Venetian red, dry, from £4.; blue black, £4. 5s.; mineral black, £4.; yellow ochre, dry, from £3. 15s. Red lead, £13.; white lead and oxide of zinc unchanged. Ultramarine from 3d. to 8d. per lb. Ready-mixed paints, £24. ton, in lever tins. Black varnish, in barrels, £5. per ton; oak varnish, 5s. 6d. per gallon.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, steady: Scotch warrants closed at 43s. 5d., Middlesbrough 36s. 5½d. cash, and hematite 44s. 6d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £40. 10s. od. to £40. 15s. od. cash, and £40. 17s. 6d. to £41. 2s. 6d. three months. Tin, firm: Straits closed at £71. 5s. to £71. 15s. cash, and £71. 12s. 6d. to £72. 2s. 6d. three months; Australian, £71. 15s.; English ingots, £73. to £73. 10s. od. Lead, quiet: Spanish, £10. 0s. od.; English, £10. 2s. 6d. to £10. 5s.; Silesian Spelter, ordinary, £15. 12s. 6d. Nickel, 1s. 5d. Antimony, £32 5s. Quicksilver: first hands, £6. 10s.; second hands, £6. 9s. Copper shares, quiet: Cape, 1½ to 1¾; Copiapo, 1½ to 2¼; Libiola, 3¾ to 3½; Mason and Barry, 2½ to 2¾; Rio Tinto, 14½ to 15½; Tharsis, 4¾ to 4½.

WOLVERHAMPTON, WEDNESDAY.—The improvement in trade was well maintained at to-day's meeting, and advanced rates for both crude and finished iron were obtained. Sellers of Midland pigs stated that they were full of orders. Northampton pigs were raised to 42s; Derbyshire, 42s. to 43s., both less discount; and Lincolnshire 43s. net. Welsh forge hematites, 51s to 52s. 6d.; and West Coast hematites, 53s. to 54s. Staffordshire pigs practically unaltered. Finished iron brisk; merchant bars 2s. 6d. per ton dearer on former minimum, and galvanised sheets 5s. Common bars quoted £5. 10s.

GLASGOW, WEDNESDAY.—Market firm, with fair business. Scotch done at 43s. 5d. and 43s. 5½d. cash, also at 43s. 7d. and 43s. 7½d. one month; closing with buyers at 43s. 6d. cash, sellers ask ½d. more Cleveland done at 36s. 7d. and 36s. 7½d. one month; closing with buyers at 36s. 5½d. cash, sellers ask 36s. 6d. Cumberland hematite closes with buyers at 44s. 6d. cash Middlesbrough hematite closes with buyers at 43s. 2d. cash. Copper done at £40. 10s. 33 days, and £40. 16s. 3d. three months.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.
OILS.—Palm oil is strong, and in good demand. Hard oils have sold at £22., and Lagos at £24. per ton transit. Olive is steady, with a fairly good business doing at firm prices. Values seem inclined to harden still further. Linseed is firm at 22s. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed keeps steady at 21s. to 21s. 3d. per cwt. for Liverpool refined. Castor oil is rather firmer so far as regards good seconds Calcutta, which is now quoted at 2½d. per lb. First pressure French, however, remain unaltered at 2d. per lb. Tallow is in rather limited request, but holders adhere firmly to the present values. Rosin is fairly well inquired for, with common 3s. 7½d. to 3s. 9d.; medium, 4s. to 6s.; and fine, 6s. 6d. to 8s. per cwt. Spirits of turpentine seem steady now at 22s per cwt., moving off well at the price. Petroleum is in rather better demand. Russian refined, 3½d. to 3¾d.; and American, 4d. to 5¼d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

There is little alteration to report in the chemical market. Bleach has been in better demand, and shipments to the Continent heavier. Soda crystals are quoted at £2. 1s. per ton. Caustic, 76/77%, £10. 5s. and £10. 10s. per ton. Sulphur quiet, at £3. 17s. 6d. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hard, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett.

soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt quiet, at 9s. 6d. and 10s. per ton, f.o.b. Tees.

COALS are a shade easier, though full work prevails at most of the local collieries. The demand from Scotland is falling off somewhat. The quotations to-day are as under:—Best Northumbrian steam, 10s. 9d. to 11s. per ton; second quality, 9s. 9d. to 10s. per ton; small steam, 4s. 9d. to 5s. per ton; bunker coals quiet, 7s. to 7s. 6d. per ton; gas coals in steady demand at 7s. 3d. to 7s. 9d. per ton; coke quiet, 13s. to 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia rests nominally at £13 10s. to £13. 12s. 6d. for prompt f.o.b. Leith. There is little or nothing doing, and those that make this section of the market a specialty, say that they never knew such an August for dulness. It is generally taken as a certainty that directly the coal strike comes to an end there will be a decided falling away in market value.

Dye chemicals are expected to come into a more active demand within the next few weeks. There are a good many inquiries about, chiefly induced, it is believed, by the American fiscal rearrangement, and so the Scotch works have the prospect of soon resuming full time production, but the coal strike must get settled first. The conviction is becoming very strong, and almost universal, that this strike is on its last legs.

Mineral oils and paraffins seem to be feeling already the approach of the new season, and the past quietness is gradually giving way to more activity, particularly in the way of providing, by contract, for estimated wants in front. A work, some years ago shut up through bankruptcy, has passed into new hands, and is to be set agoing for the turning out of gas oil.

General chemicals are still rather more active, and one or two of the lines are the turn firmer.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £13. 10s. to £13. 12s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of raw sugar at Greenock were 6,268 bags.

New Companies.

Forum Crucible Syndicate, Limited.—CAPITAL £1,500. in £5. shares. This company has been formed to purchase and work patents in connection with the manufacture of crucibles.

Atmospheric Gas Syndicate, Limited.—CAPITAL £6,000. in shares of £1. each. This company has been formed to purchase certain patents and inventions in connection with the manufacture of gas, etc.

Westphalite Syndicate, Limited.—CAPITAL £4,800. in shares of £2. each. This company has been formed to enter into an agreement with the Westfälisch Anhaltische Sprengstoff Actien Gesellschaft of Coswig, Anhalt, to manufacture and deal in explosives.

Lishman and Company Limited.—CAPITAL £2,000 in shares of £10. each. This company has been formed to carry on the business of bleachers, dyers and finishers, etc. The subscribers to the memorandum of association are:—W. W. L. Lishman, 36, Washington-street, Gillington, Bradford, dyer; G. M. Lishman, 64, Hazlehurst-brow, Daisy-hill, Bradford, warehouseman; F. D. Harrison, 7, Spring-cliffe, Bradford, commercial traveller; E. A. Lishman, 36, Washington-street, Bradford, spinster; M. J. L. Lishman, 36, Washington-street, Bradford, spinster; J. Clapham, 19, St. Paul's-road, Bradford, stuff merchant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Utilising Waste Steam. J. Wild. 15,364. August 13.
Apparatus for the Concentration of Sulphuric and other Acids. I. Levinstein. 15,366. August 13.
Improvements in Filter Funnels. H. J. Hands. 15,388. August 13.
Apparatus for Filtering Sea Water. J. Pfister. 15,441. August 14.
Detecting and Measuring Inflammable Vapours Mixed with Air. B. C. Tilghman, jun. 15,453. August 14.

Making Green Oxide of Chromium. F. L. Slocum and C. Y. Wheeler. 15,473. August 14.
Manufacturing Coke and Charcoal and Separating Products Obtained in the Manufacture. E. Edwards. 15,486. August 14.
Apparatus for Condensing Smoke, &c., and Purifying Tunnels. E. Davies. 15,584. August 16.
Improvements in the Manufacture of Glass. R. C. Baker. 15,607. August 16.
Heating Crucibles by Means of Electricity. A. C. Girard and E. A. G. Street. 15,632. August 16.
Improved Composition Paint. J. Tennant and A. Tennant. 15,676. Aug. 17.
Treating Siliceous Matter Chiefly to Produce Salts of Potassium and Sodium, and to Recover the Waste Products. S. W. Archdeacon. 15,702. August 17.
Apparatus to Produce Vapours of Chlorhydric Acid and other Substances. W. J. C. Marie and Baron de Liebhafner. 15,736. August 18.
Treating Sulphurous Zinc Ores in Blast Furnaces by the Addition of Ferriferous Substances. R. Biewend. 15,761. August 18.
Localising or Preventing Gas or Dust Explosions in Coal Mines. C. Gautsch. 15,771. August 18.
Manufacture of Alcohol. J. Y. Johnson. 15,778. August 18.
Improvements in Manufacture of Soap. G. Stecken. 15,780. August 18.
Manufacture of Carbon for Electrical and other Purposes. C. P. Shrewsbury, F. L. Marshall, J. Cooper, and J. L. Dobell. 15,782. August 18.

Gazette Notices.

PARTNERSHIP DISSOLVED.

J. BARRETT and J. CLEGG, tile manufacturers, Rochdale, under the style of Barrett and Clegg.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

PITMAN, PERCY HECTOR (carrying on business as P. Pitman and Co.), Cheadle, Cheshire, hydraulic and electrical engineer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.					
Week ending August 18th.					
Acetic Acid—		Zanzibar, 11	Clarke & Smith	Dyestuffs—	
Holland, 100 pkgs.	Beresford & Co.	" 15	Hale & Son	Annatto	
" 17	A. & M. Zimmermann	Chili, 29	L. & I. D. Jt. Co.	Denmark, 12 pkgs.	R. J. Fullwood & Bland
Acetone—		E. Indies, 35	" "	Argols	
Holland, 2 pkgs.	Beresford & Co.	Madagascar, 30	Butler's Wt. Ltd.	Italy, 268 pkgs.	D. Jacob & Sons
Alkali—		Zanzibar, 78	L. & I. D. Jt. Co.	" 37	Thames S. T. & L. Co.
Belgium, 180 c.	Arnati & Harrison	Chemicals (otherwise undescribed)		Cochineal	
Asbestos—		Germany, 76 cs.	A. & M. Zimmermann	Canaries, 27 pkgs.	Marshall & French
France, 448	Mory & Co.	" 3	L. & I. D. Jt. Co.	" 5	Kuhner, Henderson & Co.
Germany, 7	J. Henrichs	" 12	J. Vormeng	France, 10 pkgs.	T. H. Lee
Barium Chloride—		Belgium, 10 kgs.	G. Boor & Co.	" 26	W. Dutton & Co.
Germany, 10 pkgs.	Petri Bros.	Holland, 2 cks.	Sawer, Sons & Co.	Cutch	
Barytes—		" 1	J. Owen	E. Indies, 9 pkgs.	Wallace Bros.
Belgium, 50 pkgs.	T. H. Lee	Germany, 1 cs.	J. Barber & Co.	Rangoon, 1,000	Leach & Co.
Germany, 19	P. Jantzen	" 25	L. & I. D. Jt. Co.	500	Hoare, Wilson & Co.
Belgium, 85	J. L. Lyon & Co.	Citrate of Lime—		Extracts	
" 59	D. Stouter	Italy, 5 pkgs.	J. W. Drysdale & Co.	U. States, 6 pkgs.	L. P. D. Co.
Holland, 22	J. L. Lyon & Co.	Coal Products—		France, 12 cs.	T. H. Lee
Bone Meal—		Aniline		Canada, 316 pkgs.	A. J. Humphrey
E. Indies, 200 t.	E. Parkard & Co.	France, 4 pkgs.	L. C. & D. Ry.	Holland, 16	R. Baels
France, 50	H. Hunter & Co.	Naphthalene		Denmark, 4	Sharland & Co.
Borate of Lime—		Germany, 36 pkgs.	Fleming's Oil & Chemical Co., Ltd.	France, 1	T. H. Lee
France, 2 pkgs.	H. Johnson & Sons	Pitch		Fustic	
Boracic Acid—		Spain, 23 brls.	Pothe Hill & Co.	B. W. I., 3 t.	Park, Macfadyen & Co.
Germany, 25 pkgs.	F. Boehm	N. Russia, 768	F. W. Malcolm & Co.	Gambler	
Borax—		N. Russia, 3,682 brls.	" "	E. Indies, 565 pkgs.	Brown & Elmslie
Canada, 2 pkgs.	D. C. Thomas & Sons	Cream of Tartar—		Singapore, 213	R. & J. Henderson
Camphor—		Italy, 52 pkgs.	B. Jacob & Sons	216	A. Hagan
Germany, 4 pkgs.	T. H. Lee	Holland, 21	Kirkpatrick & Co.	Indigo	
" 4	L. & I. D. Jt. Co.	Spain, 8	B. & F. Wt. Co.	Germany, 19 pkgs.	L. & I. D. Jt. Co.
Carbonic Acid Gas—		France, 25	W. C. Bacon & Co.	E. Indies, 13 cts.	" "
Holland, 60 tubes	F. J. Putz & Co.	" 10	M. Ashby, Ltd.	Hong Kong, 4	Seton, Laing & Co.
Castor Oil—		" 30	Finlay & Co.	E. Indies, 11	Berrick Bros.
E. Indies, 10 cs.	R. G. Hall & Co.	Spain, 3	Evans, Lescher & Co.	Logwood	
France, 6	Beresford & Co.	France, 5	G. Ward & Sons	B. W. I., 34 t.	Park, Macfadyen & Co.
" 29 brls.	J. Greig	Portugal, 4	L. & I. D. Jt. Co.	Myrabolams	
Caustic Potash—		Cyanide—		E. Indies, 334 pkgs.	L. & I. D. Jt. Co.
Holland, 19 drs.	J. M. Steel & Co.	Holland, 30 pkgs.	F. Boehm	" 370	Darling Bros.
Caoutchouc—		Dextrine—		Shumac	
P. E. Africa 74 c	S. Figgis & Co.	Germany, 10 pkgs.	Rosenberg, Loewe & Co.	Italy, 1,195 pkgs.	J. Kitchen, Ltd.
		" 10	" "	" 100	W. Barter & Co.
				" 500	Bevington & Sons
				" 100	H. Johnson & Sons
				" 425	Harris, Bros.
				" 300	J. Kitchen, Ltd.
				Turmeric	
				E. Indies, 579 pkgs.	L. & I. D. Jt. Co.
				" 61	Prop. Sun Wt.
				" 318	L. & I. D. Jt. Co.
				" 313	Butler's Wt., Ltd.
				Farina—	
				Germany, 50 pkgs.	Seaward Bros.
				Holland, 50	J. Barler & Co.
				" 150	G. Hornzee
				Glucose—	
				Germany, 20 pkgs.	45 c. Hicks, Nash & Co.
				France, 200	200 c. L. Norman & Co.
				U. S. A., 2	10 J. Pascall
				" 300	300 Barrett, Tagant, & Co.
				" 100	100 Fuereest Bros.
				" 149	894 Deering & Rowbottom
				" 2,000	2,000 R. G. Hall
				" 1,000	1,000 Fellows
				" 2,000	2,000 Morton, & Co.
				Germany, 20	44 M. D. Co.
				" 50	455 Prop. Chmbln's
				" 200	200 Wf.
				" 50	405 Prop. Chmbln's
				U. S. A., 100	550 Wf.
				Guano—	
				France, 36 c.	Soundy & Son
				Infusorial Earth—	
				Germany, 435	W. Byford
				" 9	J. Henrichs
				Lead Acetate—	
				Holland, 14 pkgs.	F. Boehm
				Litharge—	
				Holland, quantity	Colthurst & Harding
				Ochre—	
				Holland, 15 pkgs.	Phillipps & Graves
				France, 99	W. Harrison & Co.
				Holland, qty.	Hernu, Peron & Co.
				France, 1 pkgs.	J. L. Lyon
				Paraffin Scale—	
				U. States, 120 brls.	Anglo-Am. Oil Co.
				Paraffin Wax—	
				U. States, 80 brls.	G. H. Frank
				" 104	H. Hill & Sons
				Rangoon, 495 cs.	" "
				Phosphate of Lime—	
				Holland, 1 t.	Hernu, Peron & Co.

Phosphate Rock—

Holland, 3 t. J. Owen
France, 200 A. Hunter & Co.

Phosphorus—

U. States, 10 pkgs. Alsing & Co.,
Lud.

Potash—

Germany, 10 pkgs. F. Boehm

Potassium Bicarbonate—

Holland, 5 pkgs. A. & M. Zim-
mermann

Potassium Bioxalate—

Holland, 20 pkgs. Beresford & Co.

Potassium Carbonate—

France, 114 cs. J. A. Reid
Canada, 317 c. J. Barber & Co.

Potassium Nitrate—

Germany, 3 pkgs. H. Johnson
& Sons

E. Indies, 692 bgs. Perkins & Homer
Ralli Bros.

" 1,250 Lucas & Spencer's Wl.

Germany, 30 cks. Soundy & Sons

" 38 P. Hecker & Co.

" 4 Petri Bros.

" 40 Soundy & Sons

" 40 J. Hall & Sons

Potassium Permanganate—

Holland, 20 pkgs. J. Barber & Co.

Pumice Stone—

Canary I., 4 c. Sinclair, Hamilton
& Co.

Rosin—

U. States, 1,500 brls. G. Nutter & Co.

" 100 H. Hill & Sons

" 400 F. & S. Chiesman
& Co.

France, 100 Pillow, Jones & Co.

U. States, 2,000 G. Ward & Sons

Sodium Acetate—

France, 28 pkgs. S. F. Waters & Co.

Sodium Bichromate—

Germany, 61 cks. F. V. Pryor

Starch—

Germany, 2,257 pkgs. Horne & Co.

Holland, 162 Taylor Bros.

Belgium, 470 Prop. Scott's Wl.

" 80 Sawyer, Sons & Co.

" 40 F. Clayton & Co.

" 30 H. Johnson & Sons

Stearine—

France, 120 bgs. Walbaum & Tosetti

" 213 Beresford & Co.

Belgium, 127 H. Hill & Sons

Sulphur—

Italy, 200 t. W. C. Bacon & Co.

" 10 Hyslop & Symonds

" 4 Typke & King

" 150 B. Jacob & Sons

" 26 Thames S. T.
& L. Co., Ltd.

" 600 Brandram Bros. & Co.

" 5 1/2 F. & L. Stitzler

" 200 Brandram Bros. & Co.

" 12 W. V. Robinson & Co.

Tartaric Acid—

Germany, 8 pkgs. F. C. Devon
& Co.

Holland, 11 Kirkpatrick & Co.

" 4 F. C. Devon & Co.

France, 40 B. & F. WF. Co.

Turpentine—

N. Russia, 52 brls. F. & S. Chiesman
& Co.

" 26 Dussek Bros. & Co.

Ultramarine—

Belgium, 1 pkgs. Leach & Co.

Holland, 10 G. Rahn & Co.

" 2 Phillips & Graves

Germany, 152 H. Lambert

" 10 Haefner, Kilpert & Co.

Varnish—

" 13 pkgs. L. & I. D. Jt. Co.

France, 17 Flageollet & Co.

" 15 J. Burnett & Sons

Belgium, 3 Sawyer, Sons & Co.

Verdigris—

France, 2 pkgs. B. & F. WF. Co.

Waste Salt—

Germany, 50 t. Perkins & Homer

White Lead—

Belgium, 52 pkgs. T. & W. Farnilloe

Holland, 24 Colthurst & Harding

Germany, 4 H. Lambert

" 28 C. W. Willoughby

Belgium, 19 J. L. Lyon & Co.

" 20 "

Holland, 18 Burrell & Co.

" 45 W. Balchin

Wood Pulp—

Holland, 320 pkgs. J. F. Green

Sweden, 476 bls. C. S. Lovell

Norway, 350 Tough & Henderson

Austria, 136 1/2 "

Germany, 499 Dy. Telegraph Co.

Holland, 800 G. R. Rahn & Co.

Norway, 1,265 E. J. & W. Goldsmith

" 70 M. J. Seramnes

" 1,585 Moreton Cox. Bra

" 2,259 Henderson, Craig
& Co.

" 6,520 C. Christophersen
& Co.

Zinc Oxide—

Germany, 50 pkgs. J. Matton

LIVERPOOL.

Week ending August 16th.

Amorphous Phosphorus—

Rouen, 15 cs. Co-op. W'sale
Society, Ltd.

Argols—

Oporto, 18 cks. German Bank.

Asbestos—

Quebec, 34 bgs

Barytes—

Antwerp, 11 cks. 150 bgs.

Bone Meal—

Bombay, 3,000 bgs.

Boracic Acid—

Leghorn, 30 cks.

" 12 Pickford & Co.

Boracite—

Panderma, 250 t. Roberts & Evans

" 250 Mear & Green

Castor Oil—

Marseilles, 22 cs. 404 cks. 126 brls.

Calcutta, 270

Colours—

Antwerp, 5 cks.

Cream of Tartar—

Tarragona, 1 ppe.

Divi Divi—

West Indies, 30 bgs.

Extracts—

Halifax, 40 cks. Boucher,
Bacon, & Co.

Marseilles, 5

Trieste, 600 brls. Oak, Extract,
& Co.

Fustic—

Hamburg, 5 logs.

Vera Cruz, 3,321 ps. Ledward,
Bibby, & Co.

Tampico, 8,624 ps. Gruning & Co.

Patras, 302 bds. P. V. Manochi

Corfu, 120 Barff & Co.

Gambier—

Singapore, 510 bgs.

Glucose—

New York, 100 brls. 20 pls.

Guano—

B. Ayres, 1,617 bgs.

Indigo—

Marseilles, 6 cs.

Logwood—

New York, 371 ps. B. Ackerley
& Son.

Manganese—

Lisbon, 37 t. R. & D. Jones.

Manganese Ore—

Poti, 1,850 t.

Kobe, qty.

Mineral White—

Fiume, 100 bgs.

Myrabolams—

Bombay, 1,250 bgs. D. Sassoon
& Co.

" 1,955

Ochre—

Marseilles, 10 cks. Birmingham
Colour Co.

Rouen, 16 Co-op. W'sale
Society, Ltd.

Phosphate—

Treport, 410 t.

Phosphate Rock—

Fernandina, 2,254 t. Berchard
Stenbner & Co.

Beaufort, 2,868 J. Adger & Co.

Phosphorus—

Newport News, 10 cs. W. J. Morgan
& Co.

Phosphoric Acid—

Bremen, 12 cs.

Rosin—

New York, 1,250 brls.

Saffron—

Valencia, 4 cs.

Saltpetre—

Hamburg, 12 cks. 25 bgs. 100 brls.

Calcutta, 1,204 bgs. Ralli Bros.

" 614

Karachi, 180

Stearine—

New York, 7 hds.

Antwerp, 3 cks.

Soap—

New York, 7 pkgs. Davies,
Turner & Co.

Marseilles, 2 cs. Clay Dod & Co.

" 81 80 bxs.

New York, 3 Castikyan Freres

Fiume, 10 H. W. Malletti

Soapstone—

Bordeaux, 500 bgs. G. G. Black-
well

Starch—

Hamburg, 160 cs.

Antwerp, 480

" 164

Rouen, 112 pkgs.

Sulphur—

Hamburg, 20 brls.

Sulphur Ore—

Huelva, 1,437 t. Matheson & Co.

" 1,519 "

Seville, 936

Sulphur Pyrites—

Huelva, 1,690 t. Matheson & Co.

Talc—

Trieste, 100 bgs. S. W. Hoffman

Tallow—

New York, 50 bds.

M. Video, 200 pps.

Tartaric Acid—

Marseilles, 20 cks.

Turneric—

Bombay, 100 bgs.

Turpentine—

Savannah, 2,568 brls.

Ultramarine—

Hamburg, 4 cks.

Bremen, 20

Verdigris—

Bordeaux, 1 ck.

Waste Salt—

Hamburg, 7,361 bgs.

White Lead—

Rouen, 10 cks.

Zinc Oxide—

New York, 50 brls.

Zinc Ashes—

Boston, 273 brls. 2 kgs.

Zinc Skimmings—

New York, 7 brls.

MANCHESTER.

Week ending August 18th.

Alkali—

Rouen, 6 cks. Simpson
Howden, & Co.

Aniline Oil—

Rouen, 9 brls.

Antimony Salts—

Antwerp, 10 t.

Rouen, 2 cks. Simpson,
Howden, & Co.

Cellulose—

Hamburg, 514 bls. Kellner Parting-
ton Pr. Pip. Co.

Chemicals (otherwise undescribed)

Rouen, 32 cks.

Rouen, 5 brls.

Chloride Tin—

Rouen, 6 cks. Simpson,
Howden, & Co.

Colours—

Hamburg, 2 cks. J. Newto

Rouen, 1 bx. 18 27 cs. 92 brls.

Antwerp, 10 62 Simpson
Howden, & Co.

Treport, 15 2 cs.

Extracts—

Bordeaux, 60 cks.

Farina—

Stettin, 600 bgs.

Glucose—

Stettin, 1,000 bgs.

Litharge—

Rouen, 30 cks. Simpson,
Howden, & Co.

Naphthalene—

Antwerp, 3 cks.

Ochre—

Treport, 105 cks.

Ozokerit—

Stettin, 13 bgs.

Colours— Rotterdam, 8 cs. 71 cks. 3 pks. W. & C. L. Ringrose New York, 60 brls. Bailey & Leatham Antwerp, 21 cks. Storry, Smithson & Co. Bremen, 4 Storry, Smithson & Co. " 20 Sissons Bros. & Co. " 10 Antwerp, 1 cs. 8 pks. Wilson, Sons, & Co., Ltd. Rotterdam, 107 cks. 15 cs. Hutchinson & Son Hamburg, 1 cs. Wilson, Sons, & Co., Ltd. Cottonseed— Alexandria, 1,093 t. Cottonseed Oil— New York, 405 brls. Wilson, Sons, & Co., Ltd. Dyestuffs— Alizarine Rotterdam, 20 cks. W. & C. L. Ringrose " 67 brls. Hutchinson & Son Wadder Rotterdam, 5 cks. Hutchinson & Son Myrabolams Bombay, 2,034 bgs Farina— Ghent, 200 cs. Wilson, Sons, & Co., Ltd. Stettin, 100 bgs. " " Harlingen, 1,550 Glucose— Rotterdam, 60 bgs. Hutchinson & Son Hamburg, 25 cks. Linseed Oil— Riga, 1 ck. Wilson, Son, & Co. Naphtha— St. Petersburg, 1 ck. Wilson, Sons, & Co., Ltd. Ochre— Marseilles, 59 cks. Wilson, Sons, & Co., Ltd. " 42 Oil Cake— Riga, 31 t. Paint— New York, 18 cs. Wilson, Sons, & Co., Ltd. Marseilles, 63 pks. " " Phosphate— Ghent, 804 bgs. Pigments— New York, 100 bgs. Wilson, Sons, & Co. Pitch— Hamburg, 100 pks. Wilson, Sons, & Co. Plumbago— Leghorn, 400 bgs. Potash— Antwerp, 6 dms. Bailey & Leatham Pumice Stone— Leghorn, 25 pks. Wilson, Sons, & Co., Ltd. Hamburg, 2 cs.	Starch— Antwerp, 210 cs. Bailey & Leatham Bremen, 9,126 Veltmann & Co. Rotterdam, 160 Hutchinson & Son Hamburg, 50 bgs. Soap— Naples, 19 cs. Wilson Sons, & Co., Ltd. Marseilles, 1 " " Tartaric Acid— Rotterdam, 2 cks. Hutchinson & Son Tin Oxide— Bremen, 3 cks. Veltmann & Co. Varnish— New York, 5 pks. 20 brls. Wilson, Sons, & Co., Ltd. Yalonia— Smyrna, 4,024 c. Verdigris— Marseilles, 3 cks. White Lead— Rotterdam, 30 cks. Hutchinson & Son " 89 W. & C. L. Ringrose " 12 Sissons Bros. & Co. " 18 Storry, Witte, & Co. Antwerp, 26 Bailey & Leatham Wood Pulp— Abo, 75 bls. Furley & Co. Hamburg, 177 Wilson, Sons, & Co., Ltd. Zinc Oxide— Rotterdam, 5 cks. Hutchinson & Son GLASGOW. <i>Week ending August 23rd.</i> Alizarine— Rotterdam, 11 cks. J. Rankine & Son " 96 pks. Aniline Colours— Rotterdam, 6 cs. 1 ck. J. Rankine & Son Castor Oil— Antwerp, 58 cks. Calcutta, 50 Chlorate of Manganese— Rotterdam, 4 cks. J. Rankine & Son Chromium Fluoride— Rotterdam, 2 cs. J. Rankine & Son Chrome Ore— Ghemlek, 3,550 t. J. & J. White Colours— Rotterdam, 1 cs. J. Rankine & Son " 40 pks Cream of Tartar— Marseilles, quantity Extracts— Fiume, 150 brls. G. Dickson	French Chalk— Trieste, 100 bgs. P. M'Intosh & Son Madder— Marseilles, quantity Ochre— Baltimore, 70 brls. Paraffin Scale— Philadelphia, 350 brls. Phosphate— Bona, 375 L. Rosin— Antwerp, 4 cks. Soap— Philadelphia, 200 bxs. 39 crts. Starch— Fiume, 20 bgs. W. Stirling & Sons " 30 Stearine— Rotterdam, 64 bls. J. Rankine & Son Sulphur— Fiume, 100 bgs. R. & J. Garraway " 50 cks Rowley & Dick " 321 10 Sulphate of Barytes— Antwerp, 200 bgs. 61 cks. Tartar— Bordeaux, 10 cks. Yalonia— Smyrna, 200 L. J. Buntin & Co. Waste Salt— Hamburg, 101 t. White Lead— Rotterdam, 45 cks. J. Rankine & Son " 30 Wood Pulp— Fiume, 642 bls. Drontheim, 320 Montreal, 1,080 T. Kennedy & Son Christiania, 1,395 bls. 1 pck. Zinc Oxide— Antwerp, 25 cks. Rotterdam, 5 cks. J. Rankine & Son Zinc White— Rotterdam, 125 cks. J. Rankine & Son TYNE. <i>Week ending August 18th.</i> Asbestos— New York, 1 pkge. Barytes— Antwerp, 25 cks. Tyne S. S. Co. Colour— Rotterdam, 1 bx. 8 cks. Tyne S. S. Co. Phosphate Rock— Coosaw River, 1,550 t. Blaydon Manure & Alkali Co Potash— Hamburg, 5 cks. Tyne S. S. Co.	Plumbago— Hamburg, 10 cs. Tyne S. S. Co. Antwerp, 3 bgs. Pyrates— Huelva, 1,430 t. Salt— Hamburg, 480 L. Clephans & Wiencke Starch— Rotterdam, 130 cs. Tyne S. S. Co. Sulphur Ore— Pomaron, 990 t. Mason & Barry Tar— Archangel, 1,917 brls. White Lead— Antwerp, 16 cks. Tyne S. S. Co. Wood Pulp— Christiania, 20 t. Zinc Oxide— Hamburg, 14 cks. Tyne S. S. Co. GOOLE. <i>Week ending August 15th.</i> Alizarine— Rotterdam, 208 pks. Barytes— Ghent, 100 bgs. Caoutchouc— Boulogne, 2 cks. Dyestuffs— Madder Rotterdam, 6 cks. Dyestuffs (otherwise undescribed) Rotterdam, 229 pks. Rouen, 50 cks. Boulogne, 20 2 6 cs. Ghent, 107 Farina— Hamburg, 150 bgs. Delfshyhl, 2,596 Glucose— Calais, 100 bgs. Potash— Dunkirk, 20 dms. 35 cks. Calais, 11 Saltpetre— Rotterdam, 200 bgs. Starch— Rotterdam, 10 cs. Waste Salt— Hamburg, 604 cks. 1,023 bgs. 457 t. GRIMSBY. <i>Week ending August 18th.</i> Caoutchouc— Hamburg, 7 cs. Antwerp, 1 Chemicals (otherwise undescribed) Hamburg, 5 cs. 2 kgs. Farina— Hamburg, 350 bgs.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. <i>Week ending August 22nd.</i> Acids— Tamatave, 2 cs. £7 Bankok, 6 17 Hong Kong, 30 36 Alkali— Wellington, 1 t. 2 c. £10 Alum— Salonica, 15 t. £84 Alum Cake— Calcutta, 38 t. £125 Ammonia (Liquid)— Hamburg, 10 dms. £20 Melbourne, 4 cs. 6 Mauritius, 3 pks. 11	Ammonium Carbonate— Melbourne, 20 cs. £39 Brisbane, 5 c. 12 St. Petersburg, 10 t. 335 Rouen, 2 17 101 Arsenic— Newcastle, 20 kgs. £19 Sydney, 2 39 Brisbane, 1 16 M. Video, 11 c. 10 Melbourne, 17 t. 265 Barium Dioxide— Paris, 25 dms. £200 Barium Nitrate— New York, 3 t. 12 c. £68	Bisulphite of Lime— Algiers, 6 pks. £9 Borax— Hamburg, 10 cks. £80 Sydney, 3 t. 15 c. 190 Delagoa Bay, 11 40 Antwerp, 6 cs. 12 Melbourne, 7 3 370 Boracic Acid— Melbourne, 4 t. £120 Carbolic Acid— Sydney, 17 pks. £19 Bombay, 5 cs. 35 Dunedin, 2 21 Riga, 25 cks. 104	Carbon Bisulphide— M. Video, 21 cs. £25 Caustic Potash— Melbourne, 1 t. 2 c. £26 Caustic Soda— Newcastle, 15 t. 2 c. £167 Melbourne, 17 3 152 Sydney, 1 5 Natal, 11 5 135 Brisbane, 5 3 44 Chemicals (otherwise undescribed) Bombay, 3 cks. 2 cs. £11 Shanghai, 4 kgs. 24 B. Ayres, 16 41 348 King Geo., Sd., 2 31 Melbourne, 3 1 14
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Adelaide, 2 7 13	Metallic Sodium—	Melbourne, 1 1 5	Castor Oil—
Calcutta, 2 48	New York, 2 t. 19 c. £450	Sulphuric Acid—	Sierra Leone, 3 cs.
Madras, 17 1	Hamburg, 1 12	Colombo, 10 cs. £10	Caustic Potash—
Lisbon, 3 21	Nitric Acid—	Timaru, 10 dms. 14	Newcastle, N.S.W., 3 t. 4 c. £820
Citric Acid—	Melbourne, 20 cs. £26	Algoa Bay, 3 t. 15 c. 18	Ancona, 14 20
Melbourne, 40 kgs 6 c. £92	Jersey, 35 cbs. 70	Penang, 1 18 20	St. Louis, 6 2 q. 11
Colombo, 1 ck. 24	Oxalic Acid—	Tellicherry, 30 cs. 22	Barcelona, 1 8 45
Shanghai, 1 8	Melbourne, 1 t. £32	Tartaric Acid—	Caustic Soda—
Rotterdam, 5 33	Phosphoric Acid	Natal, 2 c. £11	Adelaide, 35 dms.
Hamburg, 11 77	New York, 1 t. £100	Napier, 3 14	Algoa Bay, 7
Amsterdam, 6 41	Phosphorus—	Timaru, 1 kg. 6	Ancona, 36
Barcelona, 2 t. 16 328	Oporto, 2 cs. £21	Adelaide, 5 25	Baltimore, 185
Seville, 1 1/2 177	E. London, 1 13	Fremantle, 2 11	Barcelona, 220 52 cks.
Hamburg, 11 kgs. 10 1	Demerara, 1 13	Montreal, 5 26	Bari, 117
Copenhagen, 5 34	Potash Crystals—	Newcastle, 7 35	Catania, 49
Genoa, 10 65	Melbourne, 8 c. £76	Christchurch, 4 20	Fiume, 15
Auckland, 1 cs. 5	Bruxelles, 6 60	Sydney, 2 t. 5 213	Genoa, 99
Coal Tar Products—	Algiers, 2 cs. 24	Melbourne, 3 5 204	Hio, 250
Alizarine	Potash Salts—	LIVERPOOL.	Kingston, Ja, 5
Bombay, 25 kgs. £65	Auckland, 7 t. 14 c. £803	<i>Week ending August 32nd.</i>	Leghorn, 126
Aniline Dyes	Algoa Bay, 18 1 2,621	Acetic Acid—	Melbourne, 58
Melbourne, 1 bx. 1 cs. 2 cks. £49	Potassium Bichromate—	Ceara, 1 t. 3 c. £30	Messina, 75
Aniline Oil	Melbourne, 17 c. £38	Bombay, 1 cs. 5	New York, 375
Barcelona, 12 cks. £110	Potassium Carbonate—	Alum—	Oporto, 29
Anthracene	Oporto, 12 c. £11	Oporto, 5 t. £27	Rotterdam, 118 15 brls.
Rotterdam, 11 cks. £150	Calcutta, 6 cs. 20	Malta, 5 t. 11 c. 7	Rouen, 41
Benzol	Potassium Chlorate—	Sydney, 6 11 c. 29	St. Louis, 14 cs. 15 crts.
Hamburg, 25 dms. £193	Demerara, 3 5 kgs. 15	Sydney, 12 c. £35	St. Stephen's, 90
Rotterdam, 20 pns 132	Seville, 3 10	Aden, 1 5 6	Tarragona, 30
Terneuzen, 40 291	Gothenburg, 10 t. 16 5 16	Alexandria, 5 25	Valparaiso, 75
Boulogne, 26 cks. 75	New York, 10 t. 16 580	Vigo, 1 4 7	Antwerp, 26 brls.
Carbolic Acid	Potassium Chloride—	Naples, 1 11 8	Bahia, 50
Rotterdam, 50 cks. 49 rns. £361	Montreal, 5 c. £16	Montreal, 10 17 53	Boston, 175
Coal Tar Dyes	Potassium Cyanide—	Beyrout, 3 3 23	Cadiz, 10 cks.
Boston, 8 cks. £129	Melbourne, 2 cs. £16	Melbourne Wrf., 1 7	Calcutta, 193
Creosote	Delagoa Bay, 10 194	Portland, O., 16 10 115	Cardenas, 50
Shanghai, 10 dms. £9	Potassium Nitrate—	Alum Cake—	Havana, 130
New York, 2 cs. 30	Bombay, 2 cks. £11	Calcutta, 6 t. 11 c. £22	Honolulu, 15
Naphtha	Brisbane, 10 c. 11	Ammonium Carbonate—	London, Ont., 30
Sydney, 20 cs. £20	Potassium Permanganate—	Montreal, 2 t. 10 c. £90	Newport News, 75
Boulogne, 3 cks. 18	Melbourne, 5 c. £14	Messina, 4 7	Padang, 40
Calais, 24 brls. 50	Salammoniac—	Venice, 12 20	Para, 10
Naphthaline	Varna, 1 t. £35	Genoa, 2 9 84	Passages, 25
Dunedin, 2 cs. £26	Constantinople, 1 14 c. 38	Trieste, 5 8	Pernambuco, 50
Hamburg, 119 26 cks. 119	Melbourne, 10 21	Stockholm, 10 15	Rio de Janeiro, 20
Bombay, 5 35	Saltpeetre—	Gothenburg, 5 2 q. 10	Rouen, 27
Paraffin Wax	Newcastle, 10 c. £11	Ammonium Sulphate—	Samarang, 9
Launceston, 20 bgs. £38	Antwerp, 10 cks. 36	New York, 10 t. 17 c. £1,398	Seville, 100
Pitch	Rotterdam, 18 111	Hamburg, 20 270	Stettin, 30
Amsterdam, 1 ck. £5	Salicylic Acid—	Genoa, 10 134	Sydney, 80
Boston, 150 brls. 350 pkgs. 546 bgs. 201	Pt. Chalmers, 1 cs. £16	Alicante, 5 2 2 q. 72	Trieste, 20
Newport News, 420 bgs. 148	Saltpetre—	Teneriffe, 10 6 2 140	Chicago, 250
Dordt, 160 t. 285	Newcastle, 2 t. 10 c. £11	Las Palmas, 70 1 970	
Tar	Vigo, 3 14 125	Gd. Canary, 13 2 184	Chemicals (otherwise undescribed)
Melbourne, 30 brls. £24	Lisbon, 4 15 103	Sourabaya, 202 10 1 2,900	B. Ayres, 1 t. 1 c. 3 q. £42
Wellington, 33 pkgs. 9	Sydney, 9 5 216	Antigua, 6 2 86	Syria, 10 18
Boston, 140 80	Melbourne, 5 10 126	Nickerie, 5 75	Rotterdam, 15 28
Danzig, 250 135	Bahia, 2 18 65	Antimony Ore—	Alexandria, 1 37
Tar Oil	Gothenburg, 1 22	New York, 51 cks.	Bremen, 40 2 500
Pt. Chalmers, 30 dms. £10	B. Ayres, 14 75	Barium Chlorate—	New York, 5 6 170
Boulogne, 30 cks. 50	Oporto, 2 19 62	Vigo, 3 c. £15	Antwerp, 11 3 22
Copper Sulphate—	Rio de Janeiro, 45 5 1,027	Bleaching Powder—	China Clay—
Cologne, 6 t. 9 c. £102	Montreal, 1 19 45	Ancona, 16 cks.	Bombay, 100 t.
Algoa Bay, 1 15	Sheep Dip—	Boston, 401 6 brls. 16 cs.	Boston, 1,031 10 cks.
Odessa, 9 16 142	Melbourne, 100 kgs. £150	Vigo, 6 brls. 16 cs.	Dunedin, 10 cks.
Salonica, 1 1 18	Natal, 2,000 drs. 468	Naples, 35	Genoa, 100
Riga, 2 16 40	E. London, 1 t. 3 c. 40	Philadelphia, 220	Odessa, 10
Danzig, 10 2 137	Brisbane, 60 pkgs. 31	Barcelona, 10	Bombay, 14
Bordeaux, 50 750	Napier, 2 cts. 60 dms. 45	Calcutta, 60	Chloride of Zinc—
Cream of Tartar—	Algoa Bay, 500 98	Corunna, 10 10	Bombay, 10 t. 6 c. £182
Adelaide, 1 t. £72	Lytleton, 220 pkgs. 302	Montreal, 16	Coal Products—
Melbourne, 3 10 c. 226	Soda—	New York, 110 8	Alizarine
Sydney, 1 5 83	Gibraltar, 1 t. £4	Rouen, 8	Boston, 6 cks.
Brisbane, 1 5 87	Soda Crystals—	Stockholm, 14 5	Pitch
Wellington, 12 46	M. Video, 2 t. 5 c. £6	Vera Cruz, 5	Beyrout, 10 brls.
Otago, 5 18	Sydney, 54 2 121	Boracic Acid—	Tar
Newcastle, 15 53	Sodium Bicarbonate—	Boston, 3 t. 5 c. £97	Cabenda, 10 brls.
Fremantle, 5 21	Timaru, 1 t. 10 c. £10	Borax—	Philadelphia, 21 t. 2 c.
Disinfectants—	Fremantle, 15 7	Hamburg, 11 t. 18 c. 3 q. £252	Ukaka, 4 brls.
Calcutta, 7 c. 4 cs. £24	Tellicherry, 2 10 4	Antwerp, 10 5 290	Colours—
San Francisco, 30 dms. 15	M. Video, 10 4	Adelaide, 6 7	Santiago de Cuba, 1 brl.
Sydney, 24 40 184	Sodium Carbonate—	Talcahuano, 1 3 5	Copperas—
Brisbane, 13 pkgs. 38	Adelaide, 1 t. £14	Rotterdam, 1 1 30	Tripoli, 15 c. 1 q. £1
Melbourne, 24 60	Sodium Hyposulphite—	Yokohama, 3 9 3 73	Calcutta, 29 11 48
Colombo, 1 t. 1 c. 28	Melbourne, 2 t. £13	Kobe, 1 7 3 29	Copper Sulphate—
Cape Town, 20 cks. 10	Adelaide, 20 1 c. 72 cks. 228	Genoa, 2 21 12	Rouen, 70 t. 7 c. £1,011
Melbourne, 280 pkgs. 216	Sodium Sulphate—	Norroping, 2 42	Bordeaux, 75 11 1,070
Ferrous Sulphate—	Ghent, 50 t. £75	Vera Cruz, 2 42	Catania, 5 2 68
Varna, 9 t. 3 c. £16	Sodium Tartrate—	Calcined Magnesia—	Valparaiso, 4 19 1 q. 69
Hypophosphite of Lime—	Melbourne, 6 c. £16	M. Video, 1 cs.	Odessa, 4 9 2 58
Pa, 5 c. £83	Strontium Carbonate—	B. Ayres, 5 t. 2 c. £11	Rotterdam, 2 9 33
Manure—	New York, 1 t. £34	New York, 2 17 2 q. 34	Lisbon, 5 2 69
Riga, 151 t. 18 c. £400	Strontium Nitrate—	Carbolic Acid—	Venice, 10 1 26
Mauritius, 15 24	New York, 2 t. £49	Constantinople, 6 c. £17	Naples, 8 9 26
Demerara, 25 288	Sulphur—	Calcutta, 1 t. 7 3 q. 42	Bari, 1 10 1 26
Stettin, 550 1 1,855	Punta Arenas, 70 cks. £65	Hamburg, 3 5 3 187	Adelaide, 2 30
Trinidad, 25 1 250	E. London, 50 44	Rotterdam, 5 10 3 263	Genoa, 5 17 2 89
Reunion, 19 19 32	Sydney, 2 t. 10 c. 18	Genoa, 6 15	Alexandria, 2 14 3 40
Treport, 44 6 132	Brisbane, 2 13	Rouen, 11 17 3 198	Sydney, 1 14
Gothenburg, 25 250			Dried Blood—
Genoa, 2 250			Teneriffe, 2 t. 1 c. £17
Havana, 25 250			Las Palmas, 15 122
Rostock, 249 19 1,000			Farina—
			Bombay, 18 bgs.

Fluorspar—			
Santander,	4 brls.		
Hydrochloric Acid—			
Bombay,	1 cs.	£9	
Lime—			
Cabenda,	5 t.		
Litharge—			
Oporto,	20 cks.		
Magnesia—			
Heyrout,	30 cs.		
Corunna,	3		
Magnesium Citrate—			
Philadelphia,	5 cs.		
Magnesium Sulphate—			
Vigo,	1 t.	2 q.	£5
Seville,	3	8 c.	14
Manure—			
Havre,	200 t.	5 c.	3 q. £1,028
Landerneau,	172	12	2 645
Harcelona,	26	4	841
Hari,	2		5
(Id. Canary,	20	8	2 180
Rouen,	24	7	220
Marseilles,	65	3	1 476
Mica—			
Porto Alegre,	1 pcl.		
Oxalic Acid—			
Barcelona,	5 t.	1 c.	3 q. £131
Melbourne,	1		38
Paint—			
Cabenda,	13 brls.		
Caboon,	22 pkgs.	100 kgs.	1 ck.
Galata,	190		
Hamburg,	66		1
Lagos,	250		
Old Calabar,			1 cs.
Santander,			2
Singapore,	17 cks.		
Talcahuano,	36		
Ukaka,	1		
Carharren,	8		
Calcutta,		360	
Cape Town,	8		
Cardenas,	5		
E. London,	2		
Iquitos,		30	
La Plata,	4		
Para,	10		
St. Thomas,		3	
San Francisco,	17		17 crts.
Sierra Leone,			46 pkgs.
Valparaiso,	74		20 cs.
Venice,	1		
Vera Cruz,			4
San Sebastian,			1
Paints' Colours—			
Akassa,	30 cks.	60 kgs.	
Alexandria,			2 cs.
Amsterdam,			21
Barranquilla,			
Hermuda,	75	43	
Hilbao,	41		150 bgs.
Bremen,			2 brls.
Corunna,			40 bgs.
Genoa,	10		100
Gothenburg,	2		
Gibraltar,	2		
Jeremie, 1 hd.	40		12 brls.
Naples,	27		
Ponce,	2		1
Rio de Janeiro,			10
St. Jago de Cuba,			1
Santander, 6 tms.			50 bgs.
Rotterdam,			1 brl.
Vera Cruz,	4	120	
Aquadilla,			10 brls.
Bahia,			30
Bussorah,			2
Mayaguez,			1 cs.
Mazatlan,			
New York,	1		35
Pernambuco,			6
San Francisco,			2 brls.
Vigo,			3
Harcelona,	3		2 bxs
Ceara,			3
Paraffin Wax—			
Alexandretta,		4 cs.	
Smyrna,	11 bgs.		
Hari,	25		
Bilbao,	30		
Bombay,			1
Trieste,	7		
Venice,	25		
Phosphate—			
Nickerie,	5 t.	£25	
Phosphate Rock—			
Rotterdam,	9 t.	18 c.	2 q. £32
Plumbago—			
Amsterdam,	20 bgs.		
Cartagena, Sp.,	1 ck.		

Potassium Carbonate—			
St. Louis,	1 t.	15 c.	1 q. £61
Potassium Chlorate—			
St. Petersburg,	15 t.		£388
Lisbon,		10 c.	28
Kalmar,	1		56
Odessa,	3	12	209
Philadelphia,	6	5	389
Genoa,		15	40
Naples,	2	15	156
Hoston,	2	10	159
Hioigo,	2	10	141
Hamburg,	5	10	314
Catania,		10	28
Ghent,		2	6
Tampico,	2		112
Malino,	1		56
Corunna,		10	30
Oporto,		6	17
Copenhagen,	2	10	141
Batoum,	1		56
Calcutta,		7	21
New York,	6	5	365
Potassium Cyanide—			
Madras,	10 c.		£126
Potassium Nitrate—			
Gr. Canary,	7 t.	1 c.	£132
Almeria,	1		23
Bahia,		10	2 q. 12
Para,	1	11	2 35
Ceara,		6	7
Manaos,		10	12
Potassium Prussiate—			
Montreal,	1 t.		£95
New York,	30	19 c.	2 q. 2,882
Precipitated Chalk—			
New York,	40 cs.	40 cks.	
Salammoniac—			
Smyrna,		10 c.	£20
Genoa,	1 t.	12	1 q. 59
Santander,		10	18
Patras,		4	8
Philadelphia,	31	9	813
Salt—			
Accra,	37 t.	9 c.	
Antwerp,	270		
Baltimore,	475		
Akassa,	287		
Benin,	16	3	
Brass,			
Calcutta,	4,612		
Demerara,	98	6	
Gd. Bassam,	40		
Iceland,	144		
Matadi,	37½		
Montreal,	824		
New Orleans,	659		
Newport News,	553		
Pernambuco,		8	
Pt. Natal,	20		
Quebec,	600		
Rangoon,	973		
Reykjavik,	58		
Rotterdam,	67		
Singapore,	2	2	
Ukaka,	22½		
Sydney,	474	5	
Warre,	7	16	
Melbourne,	200		
Old Calabar,	30		
Adelaide,	100		
Boston,	20		
Buguma,	20		
Fernando Po,	5		
Faxe Bay,	145		
Gothenburg,	1	12	
Gd. Bassa,	5		
Lagos,	350		
Livingstone,	358	3	
Loango,	18		
Madeira,	1		
Manaos,		13	
M Video,	7	15	
Nykjobino,	646		
Portland, Or.,	550		
Rosario,	8	18	
San Francisco,	200		
Sierra Leone,	50		
Valparaiso,	4	5	
Victoria, B.C.,	368		
Bakana,	65	12	
Opobo,	20	1	
Salt Cake—			
Philadelphia,	70 t.	6 c.	£140
Hari,	100	9	100
New York,	79	4 q.	114
Antwerp,	51		120
Slag—			
Barbados,	10 t.		
Soap—			
Addah,	20 bxs.		
Axim,	134		
Alexandria,	108		
Bordeaux,	50		

Cabenda,	20		
Calcutta,	17	8 cs.	300 blls.
Canerons,	330		
C. C. Castle,	120		
Cape Town,	500	50	
Christiania,	10		
Copenhagen,	40		
Curacao,	470		
E. London,	260	5	
Gibraltar,	270		
Havre,		600	
Iquique,		1	
Kingston, Ja.,	845		
Lagos,	45		
Little Popo,	100		
Montreal,		300	3 brls.
New York,	128		
Palma,	224		
Rangoon,	1,000	1	
St. Anne's Bay,	50		
San Fernando,	500		
San Juan,	100		
Savan'ha Mar,	250		
St. John's, Nfld.,	395		
Shanghai,	2,035		
Sierra Leone,	240		
Singapore,	502		
Stockholm,		10	
Teneiffe,	298		
Victoria, B.C.,	246		
Warre,	200		
Algoa Bay,	1,040		
Antigua,	50		
Antwerp,	450		
Barbados,	312		
Hermuda,	50		
Bombay,		24	
B. Ayres,		1	
Constantinople,	10		
Demerara,	335		
Greytown,	350		
Guayaquil,		30	
Half Jack,	50		
Iquitos,	100		
Las Palmas,	924		
Liege Meuse,		600	
Naples,		6	
Piraeus,		10 bdl.	
Pt. Elizabeth,	85		
St. Gall,	120		
San Domingo,	1		
Santiago de Cuba,	1		
Toronto,	750		
Valparaiso,	1		
Soda Ash—			
Adelaide,	80 cks.		
Baltimore,	96	2,221 bgs.	
Barcelona,	24	140 brls.	
Boston,	532	680	181 tcs.
B. Ayres,	25		650 brls.
Calcutta,	50		
Canterbury,		20	
Dunedin,		40	
Geelong,		28	
Genoa,	25	69	
Havana,	3		
Iquique,	30		
Melbourne,		72	
Montreal,	50		
Newcastle,	40		
Newport News,	787		
Philadelphia,	144	920	189 tcs.
Rosario,	20		
Rotterdam,	10	50	
St. Petersburg,	105		
Sydney,	167		
Ancona,	6		
Chicago,		324	
Gothenburg,	5		
Leghorn,	16		
Maranham,			
New York,	190	2,808	110 63
Norokoping,	5		
Paris,		60	
Pt. Dover,		20	
Porto Alegre,	135		
Rio de Janeiro,		170	
Santander,	20		
Seville,	2		
Smyrna,	25	500	
Talcahuano,	10		
Thorold,		20	
Soda Crystals—			
Calcutta,	23	brls.	
Cape Town,	25		
Coronel,		50 bgs.	
Dorchester,		40 kgs.	
Philadelphia,			150 cks
St. John's, Nfld.,	20		
Talcahuano,	20		
Halifax,		35	
Hamilton, Ont.,	150		
Ibrail,	20		
Para,		20	
Singapore,	14		
Soda Salts—			
New York,	6 cks.		

Sodium Arseniate—			
Boston,	10 cks.		
Sodium Biborate—			
Antwerp,	50 brls.		
Bombay,	260 kgs.		
Hamburg,	30 cks.		
Montreal,	25 brls.		
Sodium Bicarbonate—			
Calcutta,	270 kgs.		
Canterbury,	20		
Dorchester,	100		
Dunedin,	140		
Gothenburg,	10		
Hamburg,	34	2 cks	
Havana,	30		
Genoa,	60	16	
Havre,	176	9	
Littleton,	100		
Naples,	60		
Otago,	50		
Philadelphia,	50		
Rotterdam,	20		
St. John's, Nfld.,	20		
Sydney,	200		
Vera Cruz,	20		
Wellington,	50		
Antwerp,	150	5	
Heyrout,	50		
H. Ayres,		62	
Constantinople,	20		
Corunna,			13 brls.
Danzig,	20		2
Gefle,		8	
Halifax,	10		
Hamilton, Ont.,	100		
Malta,		20 bgs.	
Marseilles,	25		
Odessa,	130		
Santander,			70
Smyrna,	20		
Stamboul,	50		
Stettin,	15	2 cks.	
Toronto,	50		
Tripoli,	20		
Yokohama,	500		
Sodium Bichromate—			
Lisbon,	5 brls.		
Sodium Chlorate—			
Ghent,	10 kgs.		
Hamburg,	29		
New York,	160		
Rotterdam,	30		
Sodium Prussiate—			
Boston,	3 cks.		
Sodium Silicate—			
Corinto,	12 brls.		
Ibrail,	14		
Piræus,	10		
Seville,		30 cks.	
Talcahuano,	10		
Sulphur—			
Demerara,	1 t.		£7
Boston,	425	8 c.	1,386
Rouen,	11	3	41
Manaos,		10	4
Superphosphate of Lime—			
Las Palmas,	22 t.		£71
Stettin,	1,035		2,784
Gr. Canary,	1		14
Tartaric Acid—			
Vera Cruz,		2 c. 3 q.	£15
Turpentine—			
Lagos,	10 dms.		
Ultramarine—			
Yokohama,	9 brls.		
Varnish—			
Barranquilla,	2 cs.		
Bilbao,		1 ck.	
Gijon,		1 dm.	
Rio de Janeiro,	3		1 bx.
Malta,			
Seville,	1		
Yerdigris—			
Hiogo,	1 ck		
Whiting—			
Charlotte Town,	30 brls.		
MANCHESTER.			
<i>Week ending August 23rd.</i>			
Alum—			
Rio de Janeiro,	1 ck.		
Ammonia—			
Rio de Janeiro,	1 dm.		
Ammonium Carbonate—			
Antwerp,	18 kgs	2 cs.	
Hamburg,	6		
Ammonium Sulphate—			
Rotterdam,	483 bgs.		
Asbestos—			
Rio de Janeiro,	2 cs.		

Colours—	
Germany, 1 ck.	
Copper Sulphate—	
Rio de Janeiro, 1 bri.	
Dyestuffs (otherwise undescribed)	
Rouen, 2 cks.	
Extracts—	
Rouen, 10 cks.	
Litharge—	
Rouen, 3 cks.	
Manure—	
Rouen, 4 cks.	
Nitrate of Lead—	
Rouen, 1 ck.	
Paraffin Wax—	
Hamburg, 3 cs.	
Salt—	
Rouen, 10 bgs.	
Sodium Chlorate—	
Rouen, 6 kgs.	
Tallow—	
Rouen, 6 cks.	

HULL.

Week ending August 18th.

Alkali—	
Harlingen, 10 cks.	
Basic Slag—	
Danzig, 75 t.	
Bleaching Powder—	
Bombay, 20 drms.	
Danzig, 6 cks.	
Caustic Soda—	
Alexandria, 7 drms.	
Bombay, 18	
Libau, 40	
Chemicals (otherwise undescribed)	
Antwerp, 13 cks. 5 cs.	
Amsterdam, 4	
Alexandria, 4	
Abo, 23	
Bombay, 1,188	276 drms.
Christiania, 19	20 pks.
Copenhagen, 10	
Danzig, 40	40
Gothenburg, 40	6
Hamburg, 198	6 pkgs.
Kurrachee, 132	
Reval, 1	
Rouen, 3	22
St. Petersburg, 10	11
Stockholm, 2	10 pks.
Stettin, 26	4
Cottonseed Oil—	
Alexandria, 34 c.	
Bremen, 120	
Christiania, 17	
Gothenburg, 139	
Hamburg, 299	
Rouen, 834	
Dyestuffs—	
Amsterdam, 1 ck.	
Riga, 1	
Rouen, 3 cs.	
St. Petersburg, 6	4 cks
Linseed Oil—	
Alexandria, 5 c.	
Bombay, 412	
Bergen, 133	
Bremen, 371	
Christiania, 740	
Copenhagen, 7	
Christiansund, 37	
Christiansand, 20	
Drontheim, 243	
Hamburg, 34	
New York, 35	
Rouen, 17	
Stavanger, 111	
Manure—	
Rouen, 20 t.	
Mineral White—	
Bergen, 50 bales.	
Naphtha—	
Copenhagen, 3 drms	
Ghent, 1	
Ochre—	
Rouen, 20 cks.	
Paint—	
Bombay, 560 cks.	
Painters' Colours—	
Antwerp, 30 cks. 5 pkgs. 2 cs.	
Amsterdam, 8	
Alexandria, 1	40
Abo, 6	
Bombay, 50 pks.	
Bergen, 4	90
Bordeaux, 3	

Christiania, 12	56	
Copenhagen, 25	7 pks.	
Christiansund, 76		
Christiansand, 50 kgs.		
Danzig, 7	1 pkge.	2
Ghent, 2	2 drms.	
Gothenburg, 24	65 pkgs.	
Hamburg, 41		
New York, 96		
Reval, 5		
Rouen, 13		
Stettin, 13		
Pitch—		
Antwerp, 170 t.		
Slag—		
Christiania, 50 t.		
Stettin, 641		
Soap—		
Christiania, 3 cs.		
Sulphate of Ammonia—		
Dunkirk, 187 bgs.		
Rouen, 10		
Rouen, 397		
Superphosphate—		
Kastrop, 600 t.		
Tar—		
Abo, 125 cks.		
Christiania, 1		
Drontheim, 5		
Stettin, 6		
Tallow—		
Gothenburg, 5 cks.		
Turpentine—		
Alexandria, 5 cks.		
Bombay, 60 drms.		
Varnish—		
Antwerp, 3 cks. 1 cs.		
Alexandria, 1		
Abo, 4 bls.		
Bombay, 75 drms.		
Drontheim, 2		
Ghent, 1		
Gothenburg, 2	3	
Hamburg, 2		
Harlingen, 2		
Stockholm, 1		
Whiting—		
Amsterdam, 6 cks.		
Alexandria, 1		
Bombay, 13		

GLASGOW.

Week ending August 23rd.

Acetic Acid—	
Adelaide, £32	
Alum—	
Adelaide, £160	
Bleaching Powder—	
New Zealand, 4 t. 1 c.	£34
Bombay, 66½	36
Adelaide, 223	93
Bichromate of Soda—	
Rouen, 546½ c.	£911
Bichromate of Potash—	
Rouen, 49 c.	£98
Philadelphia, 336	667
Carbolic Acid—	
New Zealand, £72	
Castor Oil—	
Adelaide, 129 glns.	£41
Caustic Soda—	
New Zealand, 9 t. 8½ c.	£85
Adelaide, 24	18¾
Cod Oil—	
New Zealand, 34½ c.	£345
Adelaide, 31	
Cutch—	
St. John's, N'd., 2 c.	£24
Dried Blood—	
Rouen, 24 t. 5½ c.	£192
Extracts—	
Canada, 159½ c.	£219
Guano—	
West Indies, 6 t.	£33
Linseed Oil—	
West Indies, 41½ c.	£45
Cape Colony, 30½	46
New Zealand, 16¾	101
St. John's, N'd., 2 t. 12	53
Adelaide, 3	92½
Logwood—	
Canada, 92½ c.	£34
Manure—	
West Indies, 49 t. 16½ c. £490. 16s.	
Muriate of Ammonia—	
Spain, 5 t. 14½ c. £124 14s.	

Naphtha—	
Dunkirk, 110 cks. 21 pns.	£429
New Zealand, 23	
Oxalic Acid—	
West Indies, 2 t. 3 c.	£68. 12s.
Paint—	
Rangoon, 6 t. 2½ c.	£104
Cape Colony, 149	
Chili, 100¾	88
Valparaiso, 27	18
St. John's, N'd., 4	3½
Paraffin—	
Antwerp, 13½ c.	£23
Paraffin Wax—	
Cape Colony, 30 c.	£59
New Zealand, 10 t. 4½	300
Pitch—	
Spain, 799 t. 13 c.	£1,290
Canada, 43	15½
Amsterdam, 200	310
New York, 9	12
Potassium Bichromate—	
New Zealand, 15½ c.	£30
Prussiate of Potash—	
Kouen, 6 t. 3½ c.	£448
Canada, 1	7½
Salt—	
Bombay, 107¾ c.	£21
Valparaiso, 16 t. 11½	111
Adelaide, 68	25
Sheep Dip—	
Cape Colony, 2 t. 18 c.	£70
New Zealand, 50	1,273
Stannic Chloride—	
West Indies, 11 c.	£74
Sulphuric Acid—	
Rangoon, 60 t. 16½ c.	£356
Soap—	
Rangoon, 2 t. 5½ c.	£28
West Indies, 75	52
Chili, 23	
St. John's, N'd., 3	3½
Sulphate of Ammonia—	
Rouen, 69 t. 15½ c.	£910
Dunkirk, 479	6,636
India, 185	1¾
New York, 50	19
Tar—	
Rangoon, 8 t. 4 c.	£72
Cape Colony, 48	49
India, 48	100
St. John's, N'd., 6	21
Tallow—	
Rangoon, 1 t. 2½ c.	£30
Rouen, 143	276
White Lead—	
Cape Colony, 7 t. 3 c.	£135
New Zealand, 25	16¾
Rouen, 6 cks.	395
Adelaide, 32	32

TYNE.

Week ending August 18th.

Alkali—	
Antwerp, 10 t. 6 c.	
Rouen, 3	3
Amsterdam, 12	4
Alum Cake—	
Horsens, 10 t. 1 c.	
Ammonia Alkali—	
Aalborg, 10 t.	
Ammonium Sulphate—	
Valencia, 5 t. 3 c.	
Antimony—	
Hamburg, 8 t.	
Barcelona, 6	11 c.
Rouen, 5	
Arsenic—	
Leghorn, 18 c.	
Barcelona, 3 t. 2	
Genoa, 2	4
Copenhagen, 1	2
Blanc Fixe—	
Genoa, 19 t. 16 c.	
Bleaching Powder—	
Antwerp, 23 t. 6 c.	
Hamburg, 17	8
Barcelona, 3	14
Christiania, 2	10
Lisbon, 4	18
Horsens, 1	17
Ghent, 9	7
Gothenburg, 6	3
Copenhagen, 2	16
Wilna, 6	5
Rouen, 39	9
Amsterdam, 23	1
Naples, 17	5

Calcined Magnesia—	
Genoa, 13 c.	
Caustic Soda—	
Antwerp, 37 t. 2 c.	
Hamburg, 42	18
Barcelona, 27	15
Christiania, 7	
Genoa, 57	
Valencia, 17	14
Copenhagen, 4	18
Amsterdam, 14	14
Creosote—	
Randers, 7 c.	
Iron Oxide—	
Rouen, 2 t. 1 c.	
Litharge—	
Hamburg, 3 t. 17 c.	
Rouen, 5	
Amsterdam, 11	
Magnesia—	
Hamburg, 10 c.	
Barcelona, 16 t. 19	
Manure—	
Valencia, 134 t. 12 c.	
Paint—	
Antwerp, 1 t. 7 c.	
Arendal, 3	
Rouen, 5	
Phosphorus—	
Valencia, 4 t. 2 c.	
Rosin Oil—	
Hamburg, 5 t. 19 c.	
Slag—	
Rouen, 131 t.	
Soda—	
Hamburg, 21 t. 11 c.	
Christiania, 10	8
Harlingen, 10	1
Odense, 20	15
Maribo, 4	16
Rouen, 12	3
Amsterdam, 36	17
Soda Ash—	
Bergen, 5 t. 8 c.	
Gothenburg, 13	11
Leghorn, 15	19
Sodium Bicarbonate—	
Aalborg, 1 t. 1 c.	
Sodium Hyposulphite—	
Genoa, 1 t. 10 c.	
Sodium Sulphate—	
Christiania, 50 t.	
Sulphur—	
Gothenburg, 33 t.	
Sulphate of Soda—	
Leghorn, 50 t. 9 c.	
Superphosphate—	
Rouen, 3,054 bgs.	
Stettin, 530 t.	
Tar—	
Reval, 12 t. 9 c.	
Randers, 9	
White Lead—	
Hamburg, 4 c.	
Lisbon, 3 t.	
Copenhagen, 4	6

GOOLE.

Week ending August 15th.

Dyestuffs (otherwise undescribed)	
Ghent, 3 cs.	
Rouen, 46 cks.	
Chemicals (otherwise undescribed)	
Rouen, 1 ck.	
Coal Products (otherwise undescribed)	
Boulogne, 3 cks. 12 dms. 2 cs.	
Rouen, 17	
Manure—	
Boulogne, 147 bgs.	
Coal Products—	
Pitch	
Antwerp, 317 t.	

GRIMSBY.

Week ending August 18th.

Chemicals (otherwise undescribed)	
Dieppe, 43 pkgs.	
Hamburg, 2 cs. 13 cks. 4 bls.	
Coal Products (otherwise undescribed)	
Dieppe, 80 cks.	
Dyestuffs (otherwise undescribed)	
Dieppe, 1 cs.	
Manure—	
Esbjerg, 98 t.	

PRICES CURRENT.

WEDNESDAY, AUGUST 29th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£ s. d.	Lime, Acetate (brown)		£ s. d.
Acetic, 25 % and 40 %	per cwt.	6/6 & 10/6	" (grey)	per ton	6 0 0
" Glacial	"	50/-	Magnesium (ribbon and wire)	per oz.	0 2 3
Arsenic S.G., 2000°	"	0 14 6	" Chloride (ex ship)	per ton	2 10 0
Fluoric	per lb.	0 0 3½	" Carbonate	per cwt.	1 17 0
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10	" Hydrate	per ton	17 0 0
" (Cylinder), 30° Tw.	"	0 3 0	" Sulphate (Epsom Salts)	per ton	3 0 0
Nitric 80° Tw.	per lb.	0 0 13½	Manganese, Sulphate	"	17 15 0
Nitrous	"	0 0 13½	" Borate	per cwt.	2 12 6
Oxalic	nett	0 0 3½	" Ore, 70 %	per ton	4 5 0
Phosphoric, 1750°	"	0 1 0	Methylated Spirit, 61° O.P.	per gallon	0 2 0
Picric	"	0 1 0	Naphtha (Wood), Solvent	"	0 3 6
Sulphuric (fuming 50 %)	per ton	15 10 0	" Miscible, 60° O.P.	"	0 3 9
" (monohydrate)	"	5 10 0	Oils:—		
" (Pyrites, 168°)	"	3 0 0	Cotton-seed	per on	21 0 0
" 150°	"	1 5 0	Linseed	"	22 10 0
" (free from arsenic, 145°)	"	1 6 0	Petroleum, American	per gallon	0 0 5½
Sulphurous (solution) S.G. 1025	"	3 0 0	Stearine	per ton	25 15 0
Tannic (pure)	per lb.	0 1 0	Phosphorus (yellow)	per lb.	0 2 2
Tartaric	"	0 0 11	" (red)	"	0 2 9
Arsenic, white powdered	nett per ton	13 15 0	Potassium (metal)	per oz.	0 3 7
Alum (loose lump)	"	5 2 6	" Bichromate	per lb.	0 0 4½
Alumina Sulphate (pure)	"	5 0 0	" Carbonate, 90 % (ex ship)	per ton	16 15 0
Aluminoferic	"	2 7 6	" Chlorate	per lb.	0 0 6½
Aluminium	per lb.	0 3 0	" Cyanide, 98 %	"	0 2 3
Ammonia, Anhydrous	"	0 1 4	" Hydrate (Caustic Potash) 80/85 %	per ton	21 15 0
" 880=28° B.	per lb.	0 0 3	" (Caustic Potash) 75/80 %	"	20 0 0
" =24° B.	"	0 0 2½	" (Caustic Potash) 70/75 %	"	19 10 0
" Carbonate	nett	0 0 3½	" Nitrate (refined)	per cwt.	1 2 6
" Muriate	per ton	23 0 0	" Permanganate	per cwt.	3 2 6
" (sal-ammoniac) 1st & 2nd	per cwt.	39/- & 37/-	" Prussiate Yellow	per lb.	0 0 10½
" Nitrate	per ton	44 0 0	" Sulphate, 90 % (ex ship)	per ton	9 15 0
" Phosphate	per lb.	0 0 10½	" Muriate, 80 % (do.)	"	8 7 6
" Sulphate (grey) London	per ton	13 15 0	Silver (metal)	per oz.	0 2 6½
" (grey) Hull	"	13 11 3	" Nitrate	"	0 2 10
Aniline Oil (pure)	per lb.	0 0 5½	Sodium (metal)	per lb.	0 3 0
Aniline Salt	"	0 0 5½	" Carb. (refined Soda-ash) 48 %	nett per ton	4 17 6
Antimony	per ton	32 5 0	" (Caustic Soda-ash) 48 %	"	4 0 0
" (tartar emetic)	per lb.	0 0 9½	" (Carb. Soda-ash) 48 %	"	4 0 0
" (golden sulphide)	"	0 0 10	" (Alkali) 58 %	"	3 12 6
Barium Chloride	per ton	6 10 0	" (Soda Crystals)	"	2 10 0
" Carbonate (native)	"	3 10 0	" Acetate (ex-ship)	"	14 5 0
" Sulphate (native levigated)	"	45/- to 75/-	" Arseniate, 45 %	"	11 0 0
Bleaching Powder, 35 %	nett	7 10 0	" Chlorate	per lb.	0 0 7½
" Liquor, 7 %	"	3 10 0	" Borate (Borax)	net, per ton	21 10 0
Bisulphide of Carbon	"	11 15 0	" Bichromate	per lb.	0 0 3½
Chromium Acetate (crystal)	per lb.	0 0 6	" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	to ton lots	10 15 0
Calcium Chloride	per ton	2 5 0	" (74 % Caustic Soda)	"	9 15 0
China Clay (at Runcorn) in bulk	"	17/6 to 30/-	" (70 % Caustic Soda)	"	8 15 0
Coal Tar Products and Dyes:—			" (60 % Caustic Soda)	"	7 15 0
Alizarine (artificial) 20 %	net per lb.	0 0 8	" (60 % Caustic Soda, cream) (f.o.b.)	"	7 12 6
Magenta	"	0 3 9	Bicarbonate	"	5 12 6
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 1	Hyposulphite	"	5 10 0
Benzol, 90 % nominal	per gallon	0 1 0	Manganate, 30 %	"	16 0 0
" 50/90	"	0 1 0	Nitrate (95 %) ex-ship Liverpool	per cwt.	0 8 10½
Carbolic Acid (crystallised 40°)	per lb.	0 0 5½	" Nitrite, 98 %	per ton	29 10 0
" (crude 60°)	per gallon	0 1 7	" Phosphate	"	15 0 0
Creosote (ordinary)	"	0 0 1½	" Silicate (glass)	per ton	5 7 6
" (filtered for Lucigen light)	"	0 0 2½	" (liquid, 100° Tw.)	"	4 5 0
Crude Naphtha 30 % @ 120° C.	"	0 0 5½	" Stannate, 40 %	per cwt.	3 0 0
Grease Oils, 22° Tw.	per ton	2 10 0	" Sulphate (Salt-cake)	per ton	0 17 6
Pitch, f.o.b. Liverpool or Garston	"	1 13 9	" (Glauber's Salts)	"	1 5 0
Solvent Naphtha, 90 % at 160°	per gallon	0 1 3	" Sulphide	"	8 10 0
Lucigen " and " Wells Oils	"	0 0 2½	" Sulphite	"	5 7 6
Copper	per ton	40 12 6	Strontium Hydrate, 100 %	"	3 10 0
" Sulphate	"	14 10 0	Sulphocyanide Ammonium, 95 %	per lb.	0 0 7½
" Oxide (copper scales)	"	39 5 0	" Barium, 95 %	"	0 0 5
Glycerine (crude)	"	15 0 0	" Potassium	"	0 0 7½
" (distilled S.G. 1250°)	"	41 0 0	Sulphur (Flowers)	per ton	7 5 0
Iodine	nett, per oz.	0 0 9	" (Roll Brimstone)	"	5 7 6
Iron Sulphate (copperas)	per ton	1 5 0	" Brimstone: Best Quality	"	3 15 0
" Sulphide (antimony slag)	"	2 0 0	Superphosphate of Lime (26 %)	"	2 7 6
Lead (sheet) for cash	"	11 5 0	Tallow	"	24 10 0
" Litharge Flake (ex ship)	"	13 10 0	Tin Crystals	per lb.	0 0 6
" Acetate (white)	"	25 0 0	English Ingots	"	73 10 0
" brown	"	15 15 0	Zinc (Spelter)	per ton	15 12 6
" Carbonate (white lead) pure	"	16 0 0	" Chloride (solution, 96° Tw.)	"	5 10 0
" Nitrate	"	18 15 0			

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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LATE ADVERTISEMENTS.

ADVERTISER, 25, having had eight years' experience in the Distillation of Coal Tar and the Separation and Purification of Products, desires an Appointment. For some time Manager of a small Works. Good references.—Apply, "P," *Chemical Trade Journal* Office, Manchester.

TO CHEMICAL PLUMBERS.—Wanted, First-class Chemical Plumbers. Men preferred who can do both house and chemical plumbing; none but practical men need apply.—Address, "T," *Chemical Trade Journal* Office, Manchester.

WANTED, a Small Sulphate of Ammonia Works. preferably with contracts running, and in district where good supply of liquor can be obtained.—Address, "Sulphate," *Chemical Trade Journal* Office, Manchester.

FILTER PRESSES (4), with 33 cast-iron plates in each, 25 inches square; **HYDRO EXTRACTORS**, of various sizes.—J. W. MARTIN, 29, Corporation-street, Manchester. Telegrams: "Locomotive," Manchester.

RESPONSIBLE Practical Man Wants Work. Varied chemical and mechanical experience. Conversant with details of factory management and upkeep. control of workpeople, etc.—Address, "Technical," c/o Mr. Smith, 283, Goswell-road, London, E.C.

TENDER.

TO TAR DISTILLERS.

THE Gas Committee of the Corporation of Blackpool are prepared to receive **TENDERS** for the Surplus TAR produced (about 1,500 tons) for next twelve months from September 30th.

Endorsed Tenders to be sent to the Chairman by Saturday, 22nd day of September.

(Signed) **JOHN CHEW**,
Gas Office Blackpool, September 6th, 1894. Engineer.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under..... 2s. 6d. per insertion
Each additional 10 words 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under..... 1s. 6d. per insertion
Each additional 10 words 6d.

Trade Advertisements, Announcements in the Directory Columns, and a Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

OXYGEN AS A CURE FOR "GASSING."

THERE has been a good deal of agitation recently with respect to the dangers incurred by operatives in chemical works, and though we are by no means at one with those who make this matter a subject for party clamour, we are, nevertheless, in complete accord with all genuine attempts to decrease these dangers. We have for some time been contemplating making a few remarks suggestive of a remedy for what is technically known as "gassing," and we embrace the present opportunity as the subject has just been brought somewhat prominently before the public in connection with the fatal accident that occurred in a London chemical works about the middle of last month. We notice that on Monday last the proprietors of the works referred to, were summoned before the London magistrates for not having caused some men, who were employed in emptying a Gay-Lussac tower, to wear respirators. We are distinctly of opinion that the magistrates before whom the case was tried acted wisely in granting its dismissal, as we think that more harm than good would have been done by any decision which might lead to the conclusion that the use of respirators will allow men to work in the presence of nitrogen oxides. The fact of the matter is, that where any considerable amount of nitrogen oxide is present, there is only one remedy for the workmen who may happen to be employed in the neighbourhood, and that is to get out of the way as quickly as possible. In passing, we may give it as our opinion that, in emptying a Gay-Lussac tower, precautions should be taken to create a draught which will carry any nitrogen oxides liberated away from the men who are employed on the job. Generally speaking, this can be effected by temporarily connecting the tower inlet with the chimney draught or with some other kind of exhauster. If the tower is efficiently exhausted from the bottom, the men who may be working inside run comparatively little risk of being inconvenienced by the nitrous fumes. But our intention is not so much to deal with particular instances, such as the one we have mentioned, as to indicate a remedy which, though it has only to our knowledge received a limited trial, has nevertheless been so successful as to justify a more extended adoption. It is a well-known fact, and one which serves as a very serious handle to those who would practically stifle chemical works out of existence, that some of the methods most ordinarily adopted to restore a man who has been "gassed" (and we refer here more particularly to sulphuretted hydrogen, carbonic oxide, and carbon dioxide), are barbarous in the extreme, and remind one more of the North American medicine man than of the science of the nineteenth century. The unfortunate man is generally belaboured by some of his anxious fellow workers; his face is slapped, sometimes cold water is thrown over him, often he is rolled on a barrel, and when at length he finds himself restored to consciousness it is difficult to say whether his state of extreme physical

prostration is more due to the gas he has inhaled, or the drastic measures that have been resorted to to promote his recovery. It is not generally known that if the victim can be forced to inhale pure oxygen his recovery will probably be a quicker and much less likely to be attended by disagreeable after results. By the kindness of a friend who has given us some particulars upon this subject, we are enabled to put before our readers one or two instances in illustration which have occurred within the last twelve months.

Two men were "gassed" by inhaling producer gas. Of these one was not a very serious case, and after having been walked about for three-quarters of an hour, the man was able to proceed home. The gas caused him to vomit once or twice, and gave him a violent headache, which continued till the next day. The case of the second man was worse, as he fell in an atmosphere of the gas and had to be dragged out. As he did not seem to breathe, artificial respiration was used for about fifteen minutes, after which he gradually began to breathe by himself and was able to take some brandy. He was then walked about like the other man, but, complaining of extreme cold, had to be placed near a furnace to get warm. He gradually sank into a state of complete helplessness, and was eventually sent home, where a doctor attended him all night. He, too, suffered from vomiting and violent headache, and was absent from work about four days. It occurred to the manager of the works in question that, in the event of another such occurrence, it would be well to try the effect of pure oxygen. He at once took medical advice upon the subject, and was confirmed in his determination to try the experiment. Unfortunately the opportunity soon came, as another man was "gassed" next day. This case was worse than either of the others; the man had apparently ceased to breathe, his eyes were closed, and he had every appearance of being dead. A bottle of Brin's oxygen was brought to the spot, connected up with an indiarubber tube, and the end of this put into the man's mouth. The mouth was then tightly held, the oxygen quickly turned on, and after an instant turned off again. The effect was magical. The man's eyes at once became bright, and he commenced to breathe. The oxygen was then turned on again very gently, and he sucked at the tube like a pipe. In a minute or two he had not only regained consciousness, but said the pain had left his head, and in a quarter of an hour he was walking out of the works with a man holding his arm. Although this case was the worst of the three, this man was back at his work next morning. The second of the two men who had suffered on the previous day, hearing of the effect of the oxygen upon his comrade, came to the laboratory to see if it would afford him any relief from his violent headache. A few inhalations were given him, but though he said it relieved the pain considerably, he was not able to return to work sooner than has been mentioned.

Although cases of gassing do not occur by any means so frequently as the exaggerated twaddle of some people would lead us to believe, yet there is certainly room for a good remedy, which shall be easy and safe in its immediate application, and shall leave no after ill effects. Of course it does not follow that oxygen would be as efficacious in all instances as in the case of producer gas, but the number of injurious gases to which workmen are exposed is after all so limited that if manufacturers would only take the subject up and give the oxygen bottle a trial there would soon be accumulated a mass of evidence upon the subject which would be extremely valuable, both from the standpoint of man and master.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last, at the offices, Mosley-street, Manchester, Alderman J. Thompson being in the chair. The chief inspector (Mr. R. A. Tatton) reported that extensions of time had expired in 9 cases, which are dealt with more fully in the Sub-committee's report. In regard to the Manchester scheme, the chief inspector's report contained a letter giving the following information: The total area coupled up with the main drainage system up to the present date is 4,153½ acres, containing a population of 269,865.

The remaining area to be dealt with contains 8,766½ acres, and a population of 235,503.

Touching manufacturing pollution, the report stated that 14 firms came up for consideration, which are dealt with in the Chemical Committee's report. Two firms were also asked to attend before the Committee to show cause why they were not treating their waste waters.

REPORT OF THE CONSULTING SUB-COMMITTEE.

A summary of the recommendations of this Committee shows that the consideration of 3 firms was adjourned, 4 had an extension of one month granted, 3 were granted three months, and in one other case it was decided to take proceedings after the expiration of the necessary month's notice.

The recommendations in regard to the undermentioned firms were as follows:—At Ramsbottom, the Sub-committee considered, there had been unnecessary delay on the part of the authority, and they therefore recommended that the Clerk be instructed to write and inform them that unless before the next meeting of the Joint Committee the contracts for works had been let proceedings would be taken against the Board. At Droylsden the contracts for intercepting sewers had been let. The Sub-committee, therefore, recommended than an extension of time for three months be granted to the Local Board. At Mottram-in-Longdendale the contracts for the sewage works had been let. The Sub-committee recommended that the Local Board be also allowed an extension of time for three months. In regard to the Bolton Corporation, the Town Clerk had written stating that the decision to purchase 140 acres of land at Prestwich could not be ratified until the meeting of his Corporation on the 5th September, and the Sub-committee therefore recommended that the consideration of the proceedings to be taken against Bolton be adjourned for one month. At Chadderton the Local Government Board had not yet given their sanction to the loan for the scheme, and the Sub-committee recommended that an extension of time for one month be granted. At Aspall the Sub-committee recommended that an extension of time for one month be granted to the Local Board to enable them to make application to the Local Government Board. An extension of time for one month was also granted to the Hollingwood authority, land having been agreed upon. The Marple authority had received the sanction of the Local Government Board to their scheme, and had advertised for tenders for the construction of works. The Sub-committee recommended that an extension of time for three months be granted them. With reference to the Manchester Corporation, a letter had been received from the Paving and Highways Department of the Corporation showing the area and population at present coupled up with the main drainage system, and also the area and population still unconnected therewith. The Committee recommended that the consideration of this matter be deferred for two months, when the condition of the Davyhulme sewage works would be again considered. The Swinton and Pendlebury Local Board had decided to rearrange their polarite filters and carry out other improvements which had been suggested. As the work had already commenced, the Sub-committee recommended that an extension of time for two months be allowed. At Prestwich arrangements were being made by the Local Board for the purchase of a plot of land for filters. The Sub-committee recommended that one month's further notice be allowed. It was reported that the condition of the effluent from the Whitefield Board's sewage works had improved during the past month, and the Sub-committee recommended that the consideration of the Board's position be further adjourned for one month. The Sub-committee recommended that the Clerk be instructed to write and inform the Crompton Local Board that unless they prepared a definite scheme and made arrangements for the purchase of land within one month proceedings would be taken against them. The order of court obtained against the Kearsley Local Board expired on the 22nd August, but the sewage works were not yet in operation. The Sub-committee recommended that the clerk be instructed to write to the Board, pointing out to them the severe penalties to which they rendered themselves liable by non-compliance with the order, and asking to be fully informed as to their position at the present time. Sir Henry Roscoe presented a report showing the condition of the effluent from 27 sewage works in the watershed. Of these 17 were satisfactory, six unsatisfactory, and four bad. It was decided that the report be published in the proceedings, but not the analyses. The Sub-committee recommended that the Clerk be directed to write to

each of the following local authorities calling their attention to the condition of their effluent:—Altrincham Local Board, Hyde Corporation, Astley Bridge Local Board, and Turton Local Board.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

Mr. T. W. Killick presented this report, which recommended that extensions of time be granted to nine firms as to the taking of proceedings, inasmuch as they were making satisfactory progress with a view to complying with the requirements of the Joint Committee in dealing with their sewage and refuse. In cases where no improvement was apparent the chief inspector was instructed to communicate with the firms, informing them that if they gave an undertaking to carry out efficient works for the treatment of the effluent within a specified time an extension of time would be granted to them. In one case it was decided to proceed. The Clerk reported to the Sub-committee that he had received from the Local Government Board copies of orders consenting to proceedings being taken against the following:—W. Preston, bleacher; S. Barlow and Co. bleachers; J. Bamford and Bros., E. Leach, J. Stott and Bros., and the Winterbottom Book Cloth Company.

The Committee then rose.

INDUSTRIAL CLASSES AT THE YORKSHIRE COLLEGE.

THE DYEING INDUSTRY.

IN his report on the work done in this department of the Yorkshire College at Leeds, Professor J. J. Hummel states that the number of students in the dyeing department during the past session has continued to be satisfactory, and is practically the same as last year. The general attendance of the students has been good, and the amount and quality of the work done is quite equal to the standard of previous sessions.

Some interesting research work has been carried out, and since the issue of his last report the following papers recording the results of research work carried on in the department have been published: "The Constituents of the Indian Dye-stuff, Kamela," "Hexa-nitro-anilide," "The Colouring Principles of *Rubia sikkimensis*," "The Colouring and other Principles contained in Chay-root." The idea of giving an educational value to the work of their research department has not been lost sight of, and certain of their advanced students have been engaged in making colour preparations under the supervision of Mr. Perkin; one of these is now taking part in work, the result of which will be published next session.

The report on the study of the Action of Light on Colours has already been given in these columns (No. 377, p. 114).

Some new apparatus has been obtained. For special work in dyeing, two circular glycerine dye-baths, also four sand-baths, all heated with gas, have been added to the apparatus. These prove very useful when the ordinary steam dye-baths are not available.

THE LEATHER INDUSTRIES.

The work of this department during the past session may claim in more than one respect to be in advance of its predecessors, and especially so in the character of the work done. The information gained during the visits of the lecturer (Mr. H. R. Procter) to the United States, in the long vacation of 1893, was embodied to a considerable extent in a report privately printed by the Leeds Leather Trade Association, and has been largely used both in the experimental work and in the courses of lectures delivered to students during the session.

In particular, the chrome tanning processes now so much in use in the States have received attention, and an exhaustive series of experiments have been carried out by two of the more advanced students, Messrs. Stanley C. Flitch and Carlton B. Heal, on the best methods of work and proportions of materials, and good samples of leathers of various descriptions have been made. In addition to the manufacture of glazed kid, which is one of the principal uses to which the process has been applied in the States, it seems specially suitable for the manufacture of glove leathers, from its softness, toughness, and resistance to damp. As imitation chamois, it is much cheaper than the genuine oil tanned, and probably equal durable, resisting the action of water even at a boiling temperature, and possessing the great merit of being easily and permanently dyed in almost any shade, while the actual dyeing of chamoised leather is still fraught with considerable difficulties, and most of the gloves sold are merely coloured with mixtures of pipeclay and ochres, which are destroyed by the first washing, and are always coming off in the form of dust. It also seems well adapted for belts, laces, &c., when, as is often the case with those used in textile industries, they have to stand warmth and moisture, without stretching or becoming stiff. As a substitute for calf-kid, its advantages in durability are great, and the only obstacle to its use is the difficulty of attaining the fineness of grain and plumpness of feel to which buyers of this class of leather are accustomed. No serious attempt has yet been made to

overcome these preliminary difficulties, but there can be little doubt that they would easily yield to persistent effort. In the States, the chrome tannage has been found admirably adapted for the manufacture of "patent" and enamelled leather, which, I am glad to see, is once more being produced in the Leeds district. The leather department has a considerable collection of samples of American chrome leathers, which the lecturer will be pleased to show to those interested.

Considerable attention has been paid to the analysis of leathers. It is thought that leather manufacturers have scarcely realised the amount of information which may be gained in this way as to the methods of production of a given leather. It is easy, and in some cases important, to determine the amount of weighting, whether by barytes and other minerals, or by the various forms of dextrine and glucose, and the quantity and character of the oils and fats used enable the chemist to form accurate conclusions as to the stuffing greases employed, and their mode of application. The following analyses may give some idea of what can be accomplished:—

	Russet Kip.	Ditto.	American Waxed "Calf."	Belt-butt.	Seal Morocco.
Moisture	7.8	12.4	7.2	9.2	9.9
Fatty matters	29.3	16.2	44.2	14.4	14.4
Barytes	16.7	12.1	0.0	0.0	0.0
Lime and ash	1.3	0.5	0.2	3.9	2.1
Glucose and dextrine	0.0	0.0	0.0	13.5	—
Soluble tanning matter, etc.	4.0	2.1	1.9	5.7	6.4
Leather fibre and insoluble	39.9	55.5	46.3	53.1	67.2

The really scientific analysis of oils and stuffing greases presents great difficulties. The colour reactions which were formerly much relied on, have been shown by Dr. Lewkowitch and others to depend on accidental impurities, which are often removed in refining, and, especially in the materials used in leather manufacture, are rarely of any value, so that, for the present, it is absolutely impossible to distinguish a mixture containing other fish oils, or even a certain proportion of vegetable oils, from pure cod, although the commoner adulterants, such as mineral and rosin oils, are easily detected, and it is often possible to pronounce that an oil is sophisticated without being able to say definitely what are the adulterants, or in what degree they are injurious. It is of the utmost importance that this state of things should cease to exist, and a good deal of work has been done in the laboratory with useful results. The difficulty is largely increased by the fact that damage done to leather is not usually apparent till it has been stored for some time, when it is rarely possible to obtain reliable samples of the oil which has caused the mischief. If leather manufacturers would systematically keep samples of their oils and greases (say not less than 1 lb.), recording when they were taken into use, and when finished, and in case faults are traced or suspected, would send samples for investigation to the laboratory, much useful information would be gained for themselves and the trade in general.

It is apparent by the increased number of analyses of tanning materials asked for, that the trade has fully recognised the importance of the introduction of reliable and systematic methods, for which this department may claim at least a fair share of credit. The complaint that such analyses disagreed in the hands of different chemists, which was formerly too well founded, is now no longer justified, and where the work of our laboratory has been compared with that of other qualified specialists, the agreement has always been most satisfactory. The fact that the department is on friendly terms with all the principal leather trade chemists of the Continent and America, and is kept advised of modifications in their analytical methods, is greatly conducive to this result.

COMPRESSED HAY FOR PAVEMENTS.—A peculiar use has been found by a pavement company of Philadelphia for compressed hay for pavement purposes. The very idea of paving streets with hay sounds perfectly absurd, and yet the company does it. Under heavy pressure in a patent hay press, the dry grass is pressed into cubes, and then cut into paving blocks of convenient size. After being soaked in a drying oil, the blocks become, according to the company, perfectly hard.

ALUMINIUM FOR CABS AND BOATS.—The aluminium boat sent out by the French Government for work on the Niger has turned out a great success, and those who have to navigate and live in it give it high praise. Aluminium, by the way, is about to be used for cabs. The French company L'Urbaine, who own the largest number of carriages in Paris, are about to use the metal for the bodies of their cabs in lieu of the tinplate which obtains now. This change will greatly reduce the weight.

A REDUCED DUTY ON PETROLEUM.—On the 15th of this month a new tariff measure will come into force in Russia for facilitating the competition of Russian with American petroleum in the Russo-Prussian frontier district. From that date purified or distilled petroleum exported *via* Baku, Batoum, Odessa, Tosnovize, or Graniza, will no longer be subject to the higher internal duties, but to the export tariff, and instead of 34.09 copecks as hitherto, only 24.09 copecks will be levied per poood.

DISTILLATION.*

BY R. Tervet, Junr.

SOMETIME ago I was required to perform some distillations, and I expected the product to be a very troublesome one, owing to its viscous nature, and its low vapour tension. I thought I would refresh my memory, and extend my knowledge on the theory of distillation, by referring to the text books. There I found that substances capable of distillation were divided into three classes, the third class being subdivided into three divisions.

Class I.—For liquids which are quite or almost immiscible in each other. In this case the boiling point of the mixture is lower than that of either constituent, and may be calculated if the several vapour tensions are known. Further, the boiling point of the mixture remains constant until nearly the whole of either liquid is removed, therefore liquids evaporate independently of each other, and approximately the sum of the vapour tensions is the total pressure.

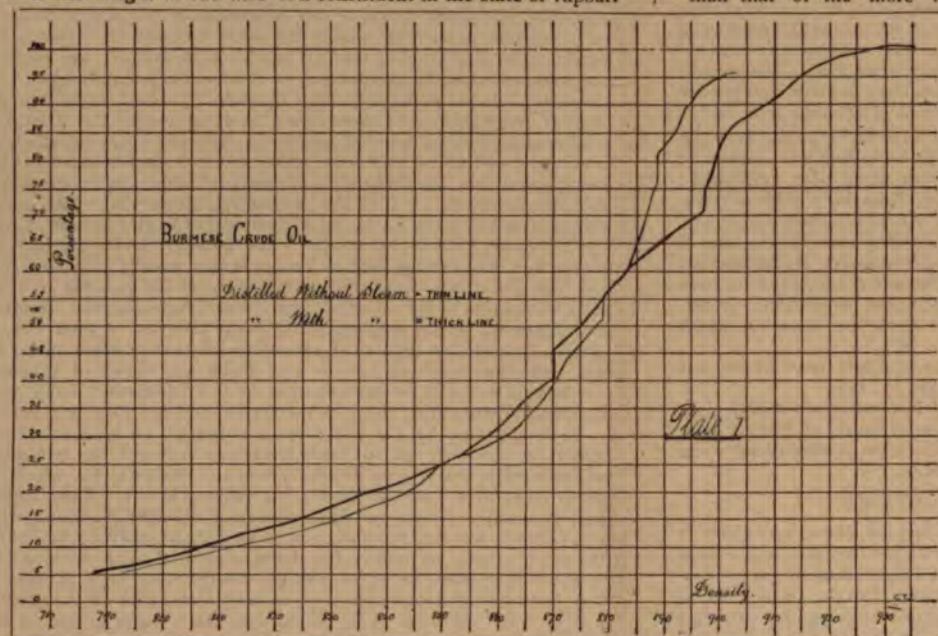
Benzol, oil of turpentine, nitro-benzol, toluol, naphthaline, etc., are all immiscible, or nearly so, in water, and come under this class.

When either of the above are distilled by the aid of steam, in properly protected vessels, it will be found that in practice the relative weights in the mixed distillate approximately conform to the following rule.

For each constituent :

$$\frac{0.896 \times VD \times 273 \times VP}{(273 + t) \times 760} = W.$$

W is the weight of one litre of a constituent in the state of vapour.



Thus, in the case of benzol and water, where t the boiling point of the mixture = 69.1°C and the vapour tension of benzol at 69.1°C is 533.7 m. m. of mercury, the vapour tension of steam at 69.1°C is 224.2 m. m. ; while the vapour density of benzol is 39, and steam is 9.

Benzol :

$$\frac{0.896 \times 39 \times 273 \times 533.7}{(273 + 69.1) \times 760} = 1.95$$

Water :

$$\frac{0.896 \times 9 \times 273 \times 224.2}{(273 + 69.1) \times 760} = 1.89$$

The relative weights in the distillate are—1.95 to 1.89; that is, 1030 of C_6H_6 to 100 of water.

Again, in the case of naphthaline and water, t = 99.

V.T. of naphthaline vapour at 99°C = 20.5 m. m.

V.T. of steam at 99°C = 732.5 m. m.

V.D. of Naphthaline is 64.

Naphthaline :

$$\frac{0.896 \times 64 \times 273 \times 20.5}{(273 + 99) \times 760} = 1.135$$

Water :

$$\frac{0.896 \times 9 \times 273 \times 732.5}{(273 + 99) \times 760} = 5.77$$

The relative weights in the distillate are—1.135 to 5.77; that is, 19.6 of C_{10}H_8 to 100 of H_2O .

* A paper read before the People's Palace Chemical Society.

The wide disparity between the proportions of benzol and naphthaline relative of water in the two distillates is explained by the fact that in the case of benzol its vapour tension and vapour density are both higher than those of steam, but in the case of naphthaline, although its vapour density is high, yet, as its vapour tension is exceedingly low, it only distills in small proportion.

As applied, this law appears to be correct for all practical purposes.

Class II. applies to liquids which are only partially miscible. Thorpe, in his "Dictionary of Applied Chemistry," says of this law, "Not very much is accurately known, and it is doubtful if definite laws can be enunciated for them further than that the vapour pressures are greater than either alone, but less than the sum of the two, and that the boiling point under any pressure is lower than that of the more vola-

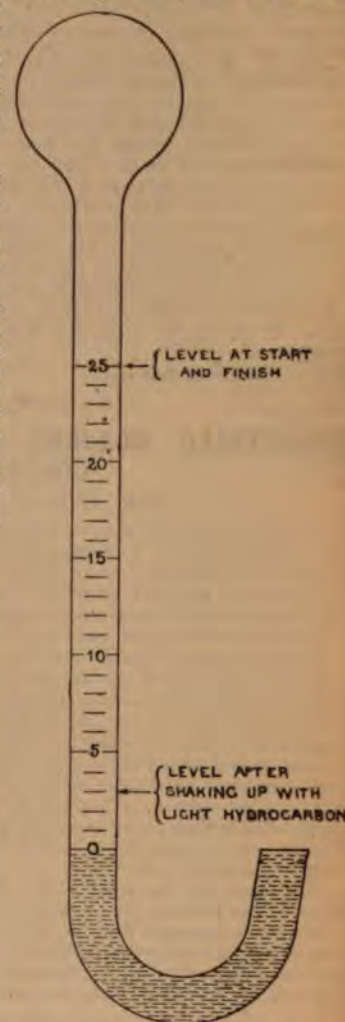


Fig 1.

tile component. The boiling point cannot, however, be calculated from the pressures of the components. Thus, in the case of the aniline and water, which are slightly soluble in each other, the lower temperature observed was 83° higher than that calculated, and with excessive aniline it rose 1° while there was still a good deal of water present. The composition of the various fractions was nearly constant, but the percentage of aniline (corrected for solubility) was more than 3% lower than that calculated."

Class III.—Liquids miscible in all proportions are divided into three sections.

(a.) When liquids are mixed in certain proportions the vapour pressure is higher, and the boiling point lower, than either component alone. For each pair of substances, that mixture which exerts the greatest vapour pressure, and which, therefore, has the lowest boiling point, boils at a constant temperature, and it is impossible to separate them by any system of fractional distillation.

(b.) The vapour pressure and the boiling point of the mixture lies between those of the components whatever the proportion may be. There is no constant boiling point, but the temperature rises continuously during distillation. The components may be separated by fractional distillation.

(c.) With mixtures of certain composition the vapour pressure is lower and the boiling point higher than either component; a mixture of constant boiling point may be obtained which cannot be altered in composition by fractional distillation. It is this mixture that has the maximum boiling point and minimum vapour pressure.

an example of Class III. let us take the well-known instance of chloric acid and water. These two bodies are miscible in all proportions, and if we apply the rule as given in Class I., observing by all constants, the composition of the distillate at a certain point we found to agree with that obtained in practice.

	Hydrochloric Acid.	Steam.
Vapour tension	84	676
Vapour density	18.25	9

$$\frac{.0896 \times 18.25 \times 273 \times 84}{(273 + 110) \times 760} = .14$$

$$\frac{.0896 \times 9 \times 273 \times 676}{(273 + 110) \times 760} = .51$$

The above proportions correspond to the hydrate $\text{HCl} \cdot 8\text{H}_2\text{O}$. We have a mixed liquid boiling at a constant temperature which is unable to separate by fractional distillation. The same may be of hydrated acetic acid which corresponds to the formula $\text{C}_2\text{H}_4\text{O}_2$.

The following calculation is based upon the best data I could obtain in view to determine the vapour tensions, knowing that the weights of acetic acid to water in the distillate are as 77 is to

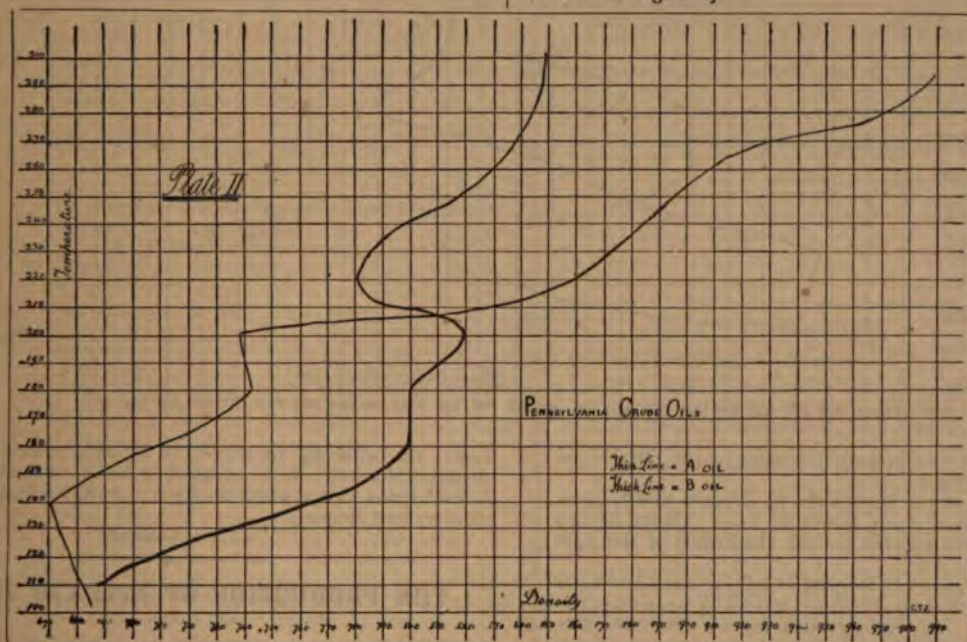
becomes a fractional one. Take, for instance, ordinary petroleum oil, crude naphtha, or alcoholic liquors, and subject them to distillation in the ordinary way. If the distillate be collected in fractions they will show a gradually corresponding increase in specific gravity.

If the fractional analyses of these substances be delineated by curves, the abscissae of which give the specific gravity and the ordinates the corresponding fractional temperatures, they at once show that the specific gravity increases with the boiling temperature.

In the case of petroleum oils certain of the fractions indicate remarkable depression from regularity, and here let me say that although every care be taken to have a uniform rate of distillation, yet the temperature does not increase at the same rate as the preceding and succeeding temperature up to and from which this depression occurs.

In the case of Burmese crude oil, Plate I., it shows itself between the temperatures 300° and 400°C ., at which temperatures certain hydrocarbons appear to undergo decomposition, accompanied with the production of permanent gas, oils of low boiling point, and deposition of carbon.

Now, if there must be some definite relation between the density and tension of the vapours towards the composition of the distillate, it is evident that this flexure in the curves needs some explanation. The only one I can give is that the light oils and gas produced at the temperature of decomposition tend to lower the boiling point as also the specific gravity, after which the distillation proceeds with approximately its former regularity.



temperature of boiling mixture = $t = 104^\circ \text{C}$.

$$\frac{45 \times .0896 \times 273 \times \text{VT}}{(273 + 104) \times 760} : \frac{9 \times .0896 \times 273 \times \text{VT}}{(273 + 104) \times 760} :: 77 : 23$$

$$\text{VT} + \text{VT}^2 = 760.$$

in (2) we get

$$45 \text{ VT} : 9 \text{ VT}^2 :: 77 : 23$$

$$\text{or } 23 \times 45 \text{ VT} - 77 \times 9 \text{ VT}^2 = 0$$

$$1035 \text{ VT} - 693 \text{ VT}^2 = 0$$

$$1035 \text{ VT} + 1035 \text{ VT}^2 = 1035 \times 760$$

$$1728 \text{ VT}^2 = 1035 \times 760$$

$$\text{VT}^2 = \frac{1035 \times 760}{1728} = 455 \text{ mm.}$$

$$\text{early VT} = 304$$

on of acetic acid vapour in presence of steam is 304 m m.

on of acetic acid vapour of itself is 750 m.m.

calculations show that the tension of the aqueous vapour, in combination with these acids, is depressed at the point where distilling in definite proportions.

ates at which these two acids distil in combination with water some way be connected with the proportion of heat given out in of HCl and that absorbed in the case of acetic acid. Further, ity of acetic acid is $3/2$ at temperatures near its boiling point.

far I have given the broad principles which regulate the pre-distillation. Now, as the majority of our distilling operations be separation of one or more volatile bodies, the process then

It will be observed that the Burmese crude oil is fractionated on precisely the same lines as that adapted for the fractionation of crude benzol, and, as already said, it is inferred that the rise in gravities of the several fractions bears definite relation to the increase of temperature as also vapour tension.

The distillation of petroleum oil may be regarded in part as a destructive one, and this is proved by comparing the two curves of Burmese oil distilled with and without steam. They show that between the temperatures 300° and 400°C . decomposition takes place to an enormous extent. The fractions which come over at these temperatures may be regarded as products of decomposition, and if examined separately will be found to consist chiefly of olefines. They range in gravity from .840 to .880.

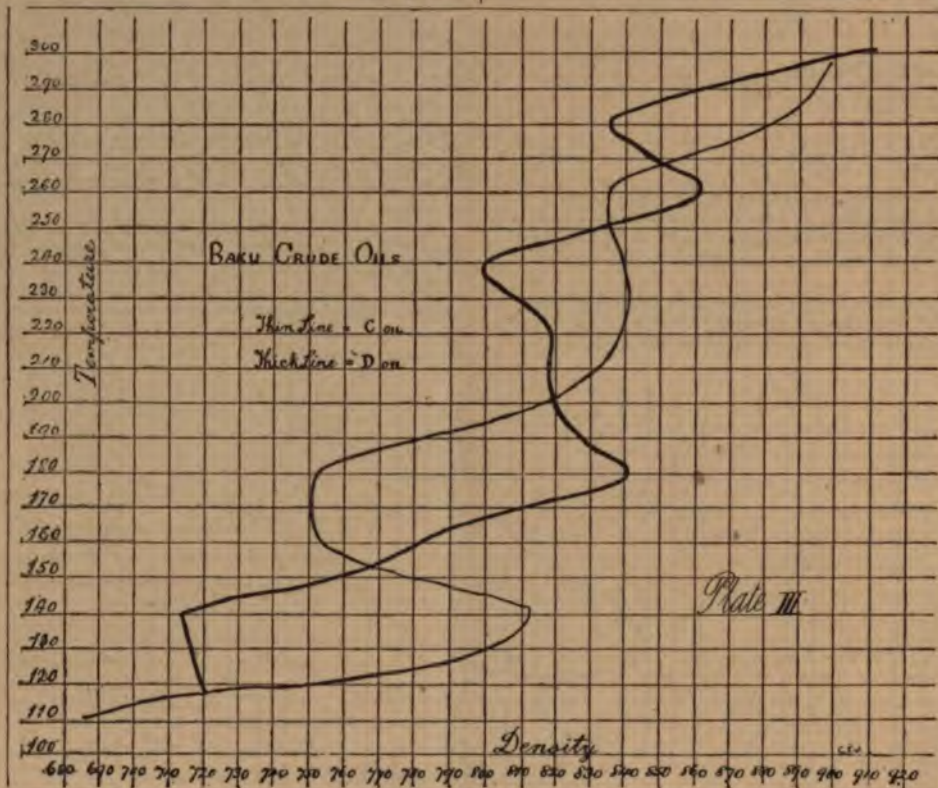
Instead of collecting the distillate in equal volumes let us be guided by equal increments of temperature.

The former method of fractionation does not show where, and to what extent, decomposition takes place. Many suppose that it does not occur below the temperatures of 350° and 400°C ., but on applying the latter method, we see that destruction of the hydrocarbons begins early on in the process and continues throughout the whole operation, as will be seen on examining the curves of Pennsylvania and Baku oils (Plates II. and III.). It is, however, very rapid, and proceeds to a considerable extent at the temperatures above named. If no decomposition took place the rise in temperature would be proportional to increase of specific gravity. But this is not so, because at some stages of the distillation the specific gravity decreases as the temperature rises, owing to the products of decomposition being lighter in gravity than the fraction from which they are derived.

It may be here observed that the partial destruction of petroleum and paraffin hydrocarbons is in many cases a necessary condition to the proper refining of these oils. As the liquid products are chiefly olefines and other degraded hydrocarbons, they are more susceptible to the subsequent chemical treatment to which they are subjected in the process of refining, while at the same time their presence gives rise to considerable inconvenience, as every distillation yields a new crop of

gravities of the distillates, and regulate the steam so that the rate of distillation may be as nearly as possible uniform.

The difference in the two modes of distilling may be explained thus. In the first case, the heavy fractions of the light oil have a higher vapour tension than the light fractions of the heavy oil; the two distil at the mean boiling point, and yield a product which stands intermediate between the first and last fraction. The action of steam over-



lighter hydrocarbons than those properly belonging to the class of oil with which the refiner is dealing.

In fractionating the oil on the large scale he depends chiefly upon proper temperature and an adequate supply of steam. Many devices have been tried, and some adopted for the elimination of the light portion.

Perhaps I may here explain why this subject is being treated so much from the standpoint of petroleum distillation instead of some other and better known substance. My reason is, that matters connected with petroleum engaged my attention, and finding I had a quantity of data at my disposal, I have incorporated some of the details, thinking that the inherent properties of the substance would be of some interest.

Now returning to the subject, let me detail an experiment to illustrate the influence which one portion of the distillate has on another.

I may explain that the volatile hydrocarbon I use has a mean boiling point of 65°C., and is obtained from what would otherwise be the so-called permanent gas produced in the process of distilling shale in the manufacture of paraffin oil. The heavier liquid is a fraction which represents that portion of the distillate which comes over between the limits of the depression in the curve No. 3, namely, that portion which is the product of excessive decomposition, and it contains a large proportion of olefines.

To proceed with the experiment, there is enclosed in the upper part of the bulb-tube, shown in Fig. 1, a certain volume of air. If we bring in contact with this air a small proportion of the light hydrocarbon and agitate the two, the water in the stem of the tube will be depressed owing to the tension of the hydrocarbon vapour.

Now, if we add some of the heavier liquid and again agitate, we find that the original volume is restored, showing that the more volatile hydrocarbon diffused through the air has been completely absorbed by the heavy oil (*vide* Fig. 1). Now, suppose we had a quantity of this mixture—that is, the heavy and light oils—to be separated by fractional distillation, we would find that the operation, if performed in the ordinary way, would yield a result which falls far short of the original proportions, owing to the gradual rise in density, and fall of the tension, of the mixed vapours. If, however, the distillation be made by the aid of steam, the operation presents no practical difficulties, and we have only to note the gradual increase of the specific

comes this difficulty by reason of its high tension and low vapour density. Moreover, the temperature at which the distillation is effected is much below that at which the lightest fraction of the heavy oil would distil by heat alone.

(To be continued.)

THE PRODUCTION OF NITRATE IN CHILI.

THE following shows the *officinas* which produced the largest amount of nitrate up to the half-year ended June 30th. Only those works which produced over 100,000 quintals are given. The results are expressed as Spanish quintals of 101 lbs. avoirdupois:—

Rosario de Huara	853,905	Paccha	189,240
Santa Luisa (Taltal)	628,000	Santa Patricio	180,000
Santa Jorge	547,356	San Antonio	179,870
Ramirez	521,010	La Patria	172,000
Santa Isabel (Toco)	459,500	Lautara (Taltal)	168,000
Agua Santa	428,120	Buen Retiro	159,490
Constancia	373,400	Jaz Pampa	154,760
Santa Rosa de Huara	291,610	Santa Catalina (Taltal) ..	152,000
Primitiva	282,270	Papaso	135,000
Union	280,000	San Francisco	127,000
La Palma	280,000	San Pablo	127,000
Tres Marias	275,000	Buena Esperanza	126,922
Cala-Cala	270,601	Compania	123,800
San Donato	235,000	Angela	116,915
Virginia	227,000	Pena Chica	116,697
Democracia	200,770	Antofagasta	114,000
Mercedes	199,114	Santa Rita	112,810
Lagunas	192,587	Puntunchara	107,000
Reducto	189,890		

A PHILATELIC ERROR.—The Inland Revenue authorities have raided the office of a weekly illustrated journal in London, and confiscated all the copies of one issue, because it contained an engraved reproduction of an old English penny stamp.

Our Book Shelf.

THE MINERAL INDUSTRY. Its statistics, technology, and trade in the U.S.A. Vol. II. Edited by R. P. Rothwell. 894 pp., including Index. London and New York: The Scientific Publishing Company, 1894. 25s.

The first volume of this work, which appeared some months ago, was an able and voluminous compilation, but is comparatively insignificant when contrasted with Vol. II. The joint work, though but a supplement to the *Engineering and Mining Journal*, represents the successful completion of a colossal task. For completeness and interest, the excellent *Mineral Resources of the United States* pales before it, and our own blue book of the mineral statistics of the United Kingdom is but an insignificant affair. The second volume is enriched by a photograph of the editor, and six pages of excellent photos of the forty-two contributors. The technological articles are interesting, and of no mean value. In addition to many articles upon metallurgical matters, mention may be made of the following:—Chrome iron ores: their occurrence, uses and metallurgy; American methods of copper refining; Arsenic: its occurrence and metallurgy; History of the Alkali Trade in Great Britain; American and Russian methods of Mining and Refining Petroleum, and modern processes of extracting Aluminium, or, according to the orthography of this work, Aluminum.

Interesting particulars are also given in connection with the following articles of interest to the chemical trade.—Alum, bauxite, iodine, magnesite, salt, sodium, pyrites, and sulphur. The article on sodium is very interesting, from which it appears that the Aluminium Company, Limited, of Oldbury, produce about six tons of sodium a week. Under sulphur there is an interesting reference to the Chance Sulphur Recovery Process, while mention is made of all the countries where sulphur is to be found. Phosphorus is carefully dealt with. Though practically this trade is controlled by Albright and Wilson, Limited, there are several works in Russia. The chief producers in France are Colnet Frères, of Lyons, who work in conjunction with the English firm. There is only one firm of makers in the States, namely, Messrs. J. J. Allen's Sons, of Philadelphia. This unrivalled collection of information concludes with a summary of the mineral production of the following countries:—Australia, Austria-Hungary, Belgium, Canada, Chili, France, Germany, Greece, Italy, Japan, Norway, Portugal, Russia, Spain, Sweden, and the United Kingdom. A list of the Mining Schools in the States and Canada, and the Dividends paid by American Mines since 1884 is also given, along with a quantity of information of a kindred nature.

THE DISCOVERY OF OXYGEN. Part I. Being experiments by J. Priestley (1775). 55 p.p. Edinburgh: W. F. Clay. 1894. 1s. 6d.

This, the seventh of the Alembic Club reprints, gives three selections from the writings of Joseph Priestley on his discovery of oxygen, or dephlogisticated air, as he preferred to call it. The first selection consists of Section III. of his "Experiments and Observations on Different Kinds of Air," and is enlivened with a page of woodcuts representing some of the apparatus used by the discoverer. The second selection consists of what Priestley himself styled a more practical account of some processes for the production of dephlogisticated air, and is somewhat irksome reading, as it describes a number of experiments made in the endeavour to prove that air consisted of nitrous acid, earth, and phlogiston. The third and last section consists of miscellaneous observations on the properties of oxygen, and is very interesting. In drawing upon his imagination as to some of the uses to which the new gas might ultimately be put, Priestley commits himself to extravagancies which remind one of more recent articles on the possibilities of ozone and aluminium. Mention is made of the fact that even at that early date a Mr. Mitchell observed that oxygen might be used to melt platinum. Apart from his faults, and frequently erroneous deductions, much credit is due to Priestley for his discovery, which was of great importance, since, by means of it, Lavoisier was furnished with a weapon, which he used efficaciously to demolish the phlogiston theory, in which Priestley died a firm believer.

THE MINERAL RESOURCES OF THE UNITED STATES FOR 1893.

By David T. Day. 810 pp., with Index. Washington: Government Office, 1894.

This useful annual is this year somewhat larger than usual, presumably owing to the explanations why the value of the mineral production for the year has been smaller than it has ever been since 1889.

A decline is noticeable in the output of iron of some two million long tons. Copper also shows a decline, but in a comparatively trifling degree. Over seven million pounds were produced from imported pyrites. Aluminium, however, has continued on the increase, 339,629 pounds having been made. The Southern deposits of bauxite continue more and more to furnish the raw material, while the Arkansas deposits, it is anticipated, will be developed during the year for making alum.

The most notable features about petroleum were the increase in price, the increase in exports, and the successful treatment of limestone oils.

In chemical minerals and mineral pigments a decline in the output seems to have been the general rule. Salt, however, is an exception with a slight increase. For the first time in the last ten years New York supplants Michigan as the principle source of production. Sulphur, borax, pyrites, barytes, Venetian reds, and zinc white all show a decrease. The output of infusorial earth has been less. There were 704 short tons of magnesite produced during the year, worth at San Francisco £2. per ton.

Pennsylvania still remains the centre of the coke-making industry, with Alabama second. There has been an increase of 2,199 in the number of coke ovens erected, making in all a total of 44,201. There are only 717 in course of erection—the smallest number for the last seven years, being less than half the number building in 1892. An article is devoted to the natural soda deposits of Nevada, California, and Oregon. No article appears this year on bromine or magnesite. In an article on pyrites, Mr. Stahl states that with the United States almost entirely dependent on Sicily for brimstone, there is little reason why the native deposits of pyrites should not be made the source of supply for commercial acid.

Reports of Companies.

THE LONDON AND MANCHESTER PLATE GLASS COMPANY, LIMITED.

As announced, a special meeting of the shareholders was held in Manchester recently, (*C. T. J.* 379, p. 114). The business of the meeting was to consider the following resolution:—"That it has been proved to the satisfaction of this meeting that the company cannot, by reason of its liabilities, continue its business, and that it is expedient to wind up the same voluntarily." Mr. William Hawkins, chairman of the company, presided, and there were upwards of one hundred shareholders present, including Colonel Gamble, C.B., Alderman Bishop, Alderman McKechnie, Dr. Gaskell, Councillor Foote, Mr. Amos Hanson, Mr. France, Mr. Smith, Mr. Thomas Walker, and Mr. John S. White, secretary, all of St. Helens; and Mr. Saul Moss, of Liverpool. The proceedings were conducted in private.

After two hours' deliberation the meeting passed the resolution that the company should be wound up, and appointed Mr. H. A. Binney, the general manager of the works; and Mr. Crookson, of Messrs. Jones, Crookson, and Company, of Manchester, as liquidators; and the following gentlemen were appointed a committee of inspection:—Sir T. Bazley, Bart., Aldermen D. McKechnie, and C. J. Bishop, of St. Helens; Mr. John Jeffries, of Manchester; Mr. Henry Tippet, and Mr. W. Hawkins, the chairman.

There is a rumor that the Ravenhead Works may be again started by their original owners, the British Plate Glass Company, by whom they had been leased to the London and Manchester Plate Glass Company, but there may be no ground for this rumour. There have also been rumours that Messrs. Pilkington Bros. intend to purchase the Sutton and Ravenhead Works, but of course it is premature to even discuss the probabilities of this statement.

LAWES CHEMICAL MANURE COMPANY LIMITED,

Mr. W. Colchester presided last week at the annual meeting of this company, at 58, Mark Lane, London, E.C., and moved the adoption of the report, which showed a balance of £33,955, out of which a dividend of 6 per cent. was recommended on the ordinary shares, leaving £6,877. to be carried forward. He thought the report was very satisfactory, considering that they had had a fire at the works, which had increased their expenses by about £2,000., besides which there had been an advance in the price of sulphate. That had cost them an extra £8,000., of which they had only been able to recover about £4,000. Their dividend was now 6 per cent., as against 10s. per share paid for several years, being about 6d. per share increase. Referring to the sudden death of Mr. George Fox, which they deeply regretted, he said that Mr. Fox was an exceedingly efficient director. He was a man of great mercantile ability and knowledge, and his death was very sudden. He lent his house to the Duke of Sutherland, who entertained the Prince of Wales there, and while the festivities were going on, Mr. Fox died suddenly in London.—Mr. J. L. Taylor, in seconding the motion, also referred to the death of Mr. Fox, and said that his genial manner and extensive knowledge of business made him a most valuable director of the company.—The report was adopted.

CHEMISCHE FABRIK SCHONINGEN.

The directors of this company announce a dividend of 6 per cent. on both the working capitals. The year previous only the Preference shares received a dividend of 5½ per cent., and the Ordinary shares nothing. M13,389. has been placed to the capital account, and M14,305. to the joint reserve fund.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

THE COST OF H_2S FROM ALUMINIUM SULPHIDE.

(To the Editor of the Chemical Trade Journal.)

SIR,—I notice in your last issue an interesting article on the preparation of sulphuretted hydrogen from aluminium sulphide and water, in lieu of the old method of acting on sulphide of iron with sulphuric acid.

The manufacture of aluminium sulphide, which is also described, is in itself interesting, and particularly so as it promises to produce the sulphide cheaply enough to make it available for a laboratory reagent. Though appreciating the advantages of this new source of H_2S , and pleased to welcome it for laboratory use, I feel bound, in justice to the time-honoured method of vitriol and ferrous sulphide, to take exception to the statement that the new reagent produces sulphuretted hydrogen just as cheaply as the old method. In the matter of convenience there is undoubtedly no comparison between the two. But for cost, I think upon the figures which are given, I can show that the old method is yet about as cheap again as the new procedure.

To give the latter the benefit of any doubt, I will take the 1·47lbs. of aluminium sulphide stated to be required to make 1lb. of H_2S , at 1·25lb., which allows a pretty fair margin. At this figure the cost of a pound of H_2S will be 3s. 1½d. Now, taking the quantities given for FeS and H_2SO_4 in round numbers, which may be done without prejudice, the 2·59lbs. of FeS and 2·9lbs. of H_2SO_4 become 2·5lb. and 3lb. respectively. With FeS at 4d. per pound, and sulphuric acid at 3d. a pound, the cost of one pound of H_2S by the old method works out to 1s. 7d., or practically half the price by the aluminium sulphide method.

If, however, the claim of the old method to greater cheapness needs any further support, it is not wanting. In the ordinary way FeS is bought for the laboratory in lots of 14lb., and sulphuric acid in Winchester quarts, under which conditions the price of the FeS becomes 3d. and the acid 1½d. per pound. This brings the cost of a pound of H_2S down to 1s. The $FeSO_4$ which is recovered is moreover useful, and worth 2d., which further reduces the cost of the pound of gas to 10d., or one-fourth the cost of the aluminium method if the full amount of aluminium sulphide required to make a pound of H_2S is taken. I do not wish by the foregoing to convey the impression that I do not appreciate the merits and interest of the new method from a scientific point of view, but desire merely to show that the old and trusty method for laboratory purposes in general, is still far away the cheaper process. Yours, &c.,

A LABORATORY HAND.

ANSWERS TO CORRESPONDENTS.

J. W. C. (New York).—There does not appear to be a great quantity. We have the matter under consideration, however, along with a number of similar requests.

J. F.—No, only those mentioned.

K. P.—Thanks for confirmation.

P. H. AND Co.—We are obliged for your letter, and trust to hear again shortly.

V. J.—Thanks. When do you think you will have it ready—approximately?

H. G.—We are always open to do so.

CRUX.—It would be no more trouble for you than for us. Perhaps you did not look at it in that light before?

LUX.—You evidently have only heard one side of the case, and that a very much one-sided account.

CHEMIST.—Your query has been under consideration. The best we can suggest is the preparation of some proprietary article, such as artificial food. This appears to afford a fairly good scope.

Trade Notes.

AN ELECTRO-CHEMICAL WORKS IN AUSTRIA.—A company has been formed in Vienna to be known as the Consortium für Electro-chemische Industrie. The Company has acquired some patents taken out by Dr. Carl Kellner, and is establishing works at Golling for the production of bleaching powder and caustic soda by the Kellner process. The works are excellently situated as regards the supply of raw material, while for motive power the water power of the Salzach is to be utilised.

FINED FOR SELLING SHEEP DIP.—An interesting case was tried at the Gloucester County Court last week, in which the Pharmaceutical Society prosecuted a man for selling sheep dip when he was not a registered chemist. Judge Ellicott said no doubt it was a hard case, but he felt bound to inflict the penalties with costs. On the question as to the payment being raised by Mr. Langley-Smith, his Honour ordered the penalties (£15.) to be paid at once, and the costs in instalments of 10s. a month.

THE SALFORD RIVER POLLUTION CASE.—The hearing of this case was to have taken place on Friday, last week. An application, however, was made by the Mersey and Irwell Joint Committee for a postponement till October 11th, to suit the convenience of the counsel engaged for the case. The application was granted.

SHE WANTED SOAP.—Owing to the coal strike in Scotland, the members of many trades, which require large supplies of coal, are idle. Meanwhile, wives and children beg or starve. They ask for food, as the primal necessity, but at least one woman, who came to the writer's door, proffered a new request. Bread she had, at least enough for the day; but she said, "For mercy's sake, give me a piece of soap. For twelve years I have managed to keep myself and my children clean; but now I haven't a penny to spare for soap."—*The Hospital*.

THE RECOVERY OF AMMONIA.—Under a recent patent a process is described for recovering ammonia from the residual ammonium sulphate of that modification of the ammonia-soda process in which ammonia and carbon dioxide are made to act upon a solution of sodium sulphate. The process of recovery also entails the preparation of a phosphatic manure. The *modus operandi* is as follows: The dry sulphate of ammonium is heated in the presence of steam, with ground tri-calcic phosphate, in the shape of high-grade mineral phosphate. Ammonia is evolved and used on a fresh batch of sodium sulphate solution, while mono-calcic phosphate is left. To render the latter more soluble a certain amount of sulphuric acid may be added.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is no material change in the position of tar products, with the exception of pitch. Benzols remain much the same as last week, with perhaps a rather firmer tendency. Crude carbolic acid and crystals (40%) are unaltered as to position and price. Crude naphtha (30% at 120°) is quoted 5½d., and solvent naphtha (90% at 160°) 1s. 3d. Creosote is about the same at 1½d. Pitch is very firm at 34s. 6d. to 35s. 6d. per ton, f.o.b. East Coast.

Sulphate of ammonia still remains stationary, which is something to say considering the disturbed state of the market. There is practically no business doing, and quotations are more or less nominal. Nearest values are:—Beckton £13. 12s. 6d., London outside makes £13. 15s., Liverpool £13. 7s. 6d., Hull £13. 11s. 3d., and Leith £13. 10s.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, but prices have been fairly well maintained. Quotations for 75/80% Florida phosphate rock remain 8¼d. c.i.f. to Baltic, 8d. c.i.f. to Continent, and 7¾d. c.i.f. to good United Kingdom ports, 1895 steamer shipment, but a shade less would probably do for 1894. For South Carolina River rock sellers ask 6½d., c.i.f. to good United Kingdom ports, but this price is rather above actual value. Peace River rock is still scarce, and is quoted: Algerian, 55/56%, may be had at 6½d. per unit. The market for River Plate bones is rather firmer, the cargoes offering having been placed, and there being no others immediately available. Nearest value of cargoes of handy size is probably £4. 11s. 3d. and £4. 12s. 6d., delivered good United Kingdom ports. Buyers do not follow the advance demanded for East Indian bone meal, and something under £4. 17s. 6d. would have to be accepted to induce business. £4. 15s. would likely be accepted for crushed Kurrachee bones, ex quay Liverpool, autumn steamer shipment. Common grinding bones are inquired for, and are worth £4. 5s. to £4. 7s. 6d., according to quality and condition, ex quay Liverpool. Nitrate of soda is quiet, but steady; on spot 9s. 1½d. per cwt. is lowest for fine quality, and 9s. for ordinary quality. Due and port of call cargoes are worth 8s. 10½d. to 9s. per cwt., June-July sailings 9s. to 9s. 1½d. per cwt., and later sailings 9s. 1½d. to 9s. 3d., ordinary quality. Refined cargoes are worth about 3d. per cwt. more.

MISCELLANEOUS CHEMICAL MARKET.

There has been a fair amount of activity in the market during the past week, and business generally has been satisfactory. Bleaching powder is not moving quite as readily as it was, but still there is a fairly steady demand, and not much to complain about. Price remains

at £7. 10s. nett, softwoods, rails, and £8. hardwoods, f.o.b. Caustic soda continues to sell freely at current prices, viz.:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s.; cream, 60%, £7. 12s. 6d. per ton, 10-ton lots and upwards. Saltcake unchanged. Chlorate of potash in small request, and still offering at 6¼d. to 6½d. per lb., soda 8d. per lb. Nitrate of soda quiet at £9. per ton. Soda crystals flat at 42s. 6d. bags, and 47s. 6d. casks, f.o.r. works. Sulphate of copper rather firmer, and slightly higher prices are obtainable; £14. 12s. 6d. is about to-day's price. Acetates generally show signs of improvement; lime is firmer, and brown is now quoted £10. 5s. per ton, grey £10. 15s., soda £15., c.i.f. Lead (foreign white) £24. 10s., English £26. 10s. Nitrate £18. 10s. per ton. White powdered arsenic finds a quicker sale, and has advanced about 5s. per ton, price is now £13. 17s. 6d., f.o.r. Garston. Ammonia salts continues steady, with a moderate demand: grey muriate £22. 10s., and carbonate 3¾d. Oxalic acid rather scarce, and price is firm at 3¾d. Prussiates of potash and soda are in good request at 10½d. and 9½d. per lb. respectively. Crude carbolic acid is strong and somewhat scarce: the demand is good, and prices are rising, 70's are now quoted 1s. 9½d., and 60's 1s. 7½d.; crystal, 39/40°, 6d. per lb.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 43s. 6½d., Middlesbrough 36s. 3d. cash, and hematite 44s. 5½d. Copper, firmer: Chili bars, G.O.B.'s and G.M.B.'s, closed at £40. to £40. 5s., cash, and £40. 7s. 6d. to £40. 12s. 6d. three months. Tin, quiet: Straits closed at £72. 12s. 6d. to £73. 2s. 6d., cash, and £73. to £72. 10s. three months; Australian, £73. 2s. 6d.; English ingots, £74. to £73. 10s. 0d. Lead, quiet: Spanish, £9. 18s. 9d.; English, £10. 2s. 6d.; Silesian Spelter, ordinary, £15. 11s. 3d. to £15. 12s. 6d., Nickel, 1s. 5d. Antimony, £37. 10s. Quicksilver: first hands, £6. 10s.; second hands, £6. 9s. Copper shares, quiet: Cape, 1¼ to 1½; Copiapo, 1½ to 2¼; Labiola, 3½ to 3¾; Mason and Barry, 2¾ to 2¾; Rio Tinto, 1¼ to 1½; Tharsis, 4½ to 4¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.
OILS.—Palm oil is steady, and fetching good prices. There is a tendency to slackened prices for Lagos, however, which is selling at £23 per ton to arrive. Olive, as was anticipated, has hardened, and prices for Candia and Levant are now £29. 10s. and £28. 10s. per ton c.i.f. Stocks are being held for higher prices. Linseed is steady, with Liverpool makes in export casks a shade easier at 21s. 6d. to 22s. 6d. per cwt. Cottonseed is firm, and full values are obtainable for Liverpool refined, namely, 21s. to 21s. 6d. per cwt. Castor oil strong, and holders steady; good seconds Calcutta is offering at 2½d., and first pressure French at 2¼d. per lb. Resin is steady; common, 3s. 8d. per cwt.; other grades unaltered from last week. There is a better tone in tallow, but business continues scarce. Spirits of turpentine have experienced no change from last week, and remain steady at 22s. per cwt. Petroleum in fairly good demand at 4d. to 5¼d. for American, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—There are many signs to an intimate observer which point to a revival in demand, and more confidence is shown all round in buyers, which after all is the best stimulant of a revival in business. The import of linseed during the week has been 1,904 quarters, which is exceedingly small, and the limited supplies make prices too high for only a limited demand; the import of cottonseed during the week has been nil, still prices only rule dull. Of rapeseed there has been an import of 7,537 qrs. of lambda seed and 495 qrs. from Odessa. Linseed oil 5s. per ton lower on the spot, closing quiet at 19s. 7½d. naked. Forward values steady: September, 19s. 4½d. to 19s. 6d.; and

October-December or January-April, 18s. 9d. to 18s. 10½d. Pale boiled, 20s. 7½d.; double boiled, 20s. 6d.; casks 17s. 6d., and ordinary barrels 22s. 6d. per ton extra. Export for the week, 1,700 cwt. Refined cotton oil steady, at 18s. 10½d. naked, spot; September-October offer at 18s. 7½d.; November-April, 17s. 7½d. to 17s. 9d.; crude 16s. 9d., naked, sellers, spot. Export for the week, 2,520 cwt. of refined. Castor oil, first pressure, 2½d. per lb. Spirits of turpentine in good demand, unchanged; this article being the object of a corner in America, will no doubt soon show developments. Cod oil quiet, at £17. to £20. per ton. Sod oil in better demand, £16. to £18. per ton. Soft soap, 14s. 6d. per cwt. Boiled oil substitute or drying oil, £12 per ton. Open flame lamp oil from 1s. 4d. per gallon. Petroleum jelly, £20. per ton.

CAKES.—A dull trade for all descriptions, but prices do not give way, owing to the comparative scarcity of seed on the spot. Linseed cakes, 95% pure, £6. 12s. 6d. to £6. 15s.; Russians, £6. 7s. 6d.; oil cakes, £5. 12s. 6d. to £5. 15s. Cotton cakes: Best makes, spot, £4. 2s. 6d. to £4. 5s., and the same November-March. Rape cakes: Black Sea, £3. 2s. 6d.; feeding cakes, £4. 7s. 6d.

PAINTS.—Trade continues fairly good, but orders for the home markets are not so large. Prices are: White lead and oxide of zinc unchanged. Oxide of iron, dry, from £7. per ton. Venetian red, dry, from £4. per ton; blue black, £4. 5s.; mineral black, £4.; yellow ochre, dry, from £3. 15s. per ton. Red lead, £13. per ton. Ultramarine from 3d. to 8d. per lb. Black varnish, in barrels, £5. per ton; Ready-mixed paints, in lever tins, £24. per ton. Oak varnish, 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The agitation for reform in the flash-point regulations of mineral burning oils has borne fruit of a sort. It has caused the associated American producers to open an office in Glasgow by way of almost avowed retaliation, and to put on the market petroleum at from 4d. to 4¼d. net per gallon, against the native paraffin oil, selling it at 4¾d. per gallon. The latter, however, allows 7½% off. A circular issued by the agents of the Americans gets very angry over the assertion of the Scotch makers that petroleum, as imported, is less safe than the home-made oils. These new comers have already placed a considerable quantity on the local market.

About the middle of last week £13. 10s. was taken for sulphate of ammonia, and although, before the week ended, there were sellers who, on two occasions at least, got £13. 11s. 3d., there is not at all any assurance in this that things tend to recovery. Indeed, the general feeling is one of languor, coupled with a belief that the nearest important changes will consist of a further break in values.

General chemicals unchanged in price, but still in slightly improved demand, particularly for foreign supply.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6½d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £13. 10s. to £13. 11s. 3d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of refined and unrefined sugar at Greenock were 10,083 bags.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue quiet, though shipments continue to be made fully up to the average. Prices show no variation from last week. Bleach is in fair inquiry, and soda ash in good demand.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4.

15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 10s. 6d. per ton, f.o.b. Tees.

COALS.—The coal trade is steady to-day, and sales continue to be made at full prices. Best Northumbrian steam, 10s. 9d. to 11s. per ton; second quality, 9s. 9d. to 10s. per ton; small steam, 4s. 9d. to 5s. per ton; bunker coals, 7s. to 7s. 6d. per ton; coke, steadier, 13s. to 14s. per ton; gas coals unaltered.

New Companies.

Adley, Tolkien, and Co., Limited.—CAPITAL £15,000., in shares of £10. each. This company has been formed to acquire and carry on the business of chemical manufacturers and merchants now carried on by G. Adley and F. Tolkien at Blackburn, Lancashire, under the style of Adley, Tolkien, and Co. The number of directors is never to exceed five. Qualification, £10. Remuneration to be fixed in general meeting. Registered office: Novas Chemical Works, Paterson-street, Blackburn.

Grimsby Towing Company, Limited.—CAPITAL £10,000., in shares of £10 each. This company has been formed among other things to sell, store, and deal in manure, oil, and coal. The subscribers to the memorandum of association are: G. L. Alward, Harrison-street, Grimsby, smackowner; J. H. Charlton, The Poplars, Grimsby, engineer; G. W. Jeffs, Glen Lyn, Grimsby, smackowner; W. T. Dunlin, 7, Albion-terrace, Carter Gate, Grimsby, smackowner; H. Morris, Normanhurst, Grimsby, smackowner; G. Jeffs (senior), Glen Lyn, Grimsby, smackowner; G. Carrington, Grimsby, smackowner; J. Gurrwell, Beacontorpe, near Grimsby, shipowner.

R. Candlish and Son, Limited.—CAPITAL £60,000., in £10. shares. This company has been formed to carry on the business of glass bottle manufacturers formerly carried on at Rotherhithe, Seaham Harbour, and Bootle. The subscribers to the memorandum of association are: J. J. Candlish, Shottin Hall, Castle Eden, glass bottle manufacturer; P. Gold, The Limes, Stansted, Essex, solicitor; A. Hall, Seaham Harbour Bottle Works, manager; W. Ham, Seaham Harbour Bottle Works, manager; R. Candlish, Seaham Harbour Bottle Works, gentleman; J. Candlish, Seaham Harbour Bottle Works, gentleman; C. A. Johnson, Seaham Harbour Bottle Works, clerk; W. Turnbull, Seaham Harbour Bottle Works, manager.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Carbonising and Drying Machine G. and J. E. Tolson. 15,787. August 20.
Improvements in Paints and Printing Inks. B. Angel and T. W. Lock. 15,836. August 20.
Improved Machinery for Painting. A. Slater. 15,854. August 20.
Improvements in Filtering Apparatus. W. Oliphant. 15,881. August 21.
Process and Apparatus for the Manufacture of Chlorine. S. A. Sadler and R. H. Wilson. 15,886. August 21.
Explosives. G. J. Buechert. 15,887. August 21.
Improved Manufacture of Artificial India-Rubber for Conversion into Varnish. A. V. Newton. 15,914. August 21.
Manufacture of Cyanides. J. E. Chaster. 15,941. August 21.
Manufacture of Cyanides and Apparatus therefor. J. E. Chaster. 15,942. August 21.
Improvement in Paint. D. Williams. 15,932. August 22.
Apparatus for Refining Metal by Electrolysis. H. A. House, H. A. House, jun., and R. R. Symon. 16,002. August 22.
Solid Persulphate of Sodium. R. Loewenherz. 16,014. August 22.
Improvements in Manufacture of Fluorescent Soaps. S. Neumann. 16,040. August 23.
Manufacture of Hydrosulphurous Acid and Hydrosulphites. J. Grossmann. 16,067. August 23.
Manufacture of Hydrosulphurous Acid and Hydrosulphites. J. Grossmann. 16,068. August 23.
Extracting Lead, Silver, and Gold from Zinc Sulphide. H. R. Angel. 16,071. August 23.
Artificial Fuel. G. S. and C. Cory. 16,087. August 23.
Apparatus for the Electrolysis of Alkaline Chlorides and Alkaline Salts. H. Auer and F. Hurter. 16,100. August 23.
Electrical Deposition of Zinc, etc. K. Heathfield and W. S. Rawson. 16,105. August 23.
Obtaining Cyanogen or its Compounds from the Gases of the Dry Distillation of Organic Matters. H. Drehschmidt. 16,149. August 24.
Obtaining Metallic Zinc from Ores. F. L. Lesage and A. F. Breuille. 16,173. August 24.
Producing Gas-formed Hydrochloric Acid by Gas-formed Nitric Acid and Chlorine. R. R. J. Krause. 16,227. August 25.
Manufacture of Formates and of Cyanides of the same. H. H. Lake. 16,258. August 25.

Gazette Notices.

PARTNERSHIP DISSOLVED.

M. LANDAU and T. H. CAMPBELL, wholesale chemists and drysalters, Bermondsey-wall, Dockhead, S.E., under the style of Wilkins, Campbell and Co.
A. J. GOWER and J. R. GOWER, chemists, &c., Tonbridge, under the style of A. and J. Gower.
R. PEARSE, W. PEARSE, F. PEARSE and E. PEARSE, oil merchants, &c., Taunton, under the style of R. Pearse and Sons.
W. JACKSON and H. JACKSON, wholesale druggists and oil merchants, Liverpool, under the style of W. and H. Jackson.
G. LANGLEY and H. FARRAR, wholesale paper merchants and agents, Manchester, under the style of Langley, Farrar and Co.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.							
Week ending August 25th.							
Acetic Acid —		Arsenic —		Carthage , 52		Belgium , 43	
Holland, 100 pkgs.	Beresford & Co.	Germany, 20 pkgs.	T. H. Lee	Zanzibar, 13	"	Chemicals (otherwise undescr.)	Petri Bros
69	F. J. Putz & Co.	Barium Chloride —		" 7	Clarke & Smith	Germany, 70 pkgs.	T. H. Lee
Acetone —		Germany, 24 pkgs.	Petri Bros.	" 5	Anderson, Weber & Smith	" 16 cs. 31 pkgs.	A. & M. Zimmermann
Holland, 156 pkgs.	A. & M. Zimmermann	Barytes —		E. Indies, 1	D. Gray & Sons	" 1	6 L. & I. D. Jt. Co.
" 69	F. J. Putz & Co.	Holland, 22 cks.	Burrell & Co.	" 260	Huttenbach & Co.	" 1	H. Lambert
Holland, 156 pkgs.	A. & M. Zimmermann	Belgium, 25	Colthurst & Harding	" 47	S. Figgis & Co.	" 5 pkgs.	Phillips & Graves
Germany, 1	H. Lorenz	" 58	Magee, Taylor & Co.	Ceylon, 21	Somes & Co.	" 12	Craven & Co.
Alkali —		" 21	S. H. Willoughby	Germany, 240	W. Balchin	Holland, 17	H. & E. Albert
Germany, 21 pkgs.	L. & I. D. Jt. Co.	" 15	J. L. Lyon & Co.	" 2	T. H. Lee	" 4	E. Merck
Alum —		Germany, 123 pkgs.	R. Bew	Lamu, 45	Wallace Bros.	" 15	J. Barber & Co.
Germany, 13 pkgs.	Ohlenschlaeger Bros.	Germany, 51 cks.	Blundell, Spence & Co.	C. America, 91	Prop. Bull's Wf.	" 6	T. H. Lee
Ammonia —		Bleaching Soda —		France, 39	Price, Hickman & Co.	France, 612	Beresford & Co.
Belgium, 8 pkgs.	T. H. Lee	Germany, 100 pkgs.	H. Lambert	Carbolic Acid —		Chloride of Sulphur —	
Ammonium Chloride —		Boric Acid —		Holland, 263 pkgs.	Phillips & Graves	Holland, 23 pkgs.	Typke & King
Holland, 4 pkgs.	Kaltenbach & Schmitz	Germany, 2 pkgs.	H. Lambert	Carbonic Acid Gas —		Citrate of Lime —	
Germany, 2	Major & Field	Butyric Acid —		Holland, 100 pkgs.	Zeitz & Co.	Italy, 10 pkgs.	Fellows, Morton & Co.
Anti Chlor —		Holland, 2 pkgs.	A. & M. Zimmermann	Castor Oil —		Cobalt Ore —	
Germany, 8 pkgs.	C. S. Lovell	Camphor —		France, 21 brls.	Beresford & Co.	Sydney, 3 t.	L. & I. D. Jt. Co.
Antimony Ore —		Germany, 1 pkgs.	L. & I. D. Jt. Co.	E. Indies, 50 cs.	Co-op. Lithge, Asc., Ltd.	Copperas —	
Portugal, 50	J. Bamber	" 16	T. H. Lee	Belgium, 20 brls.	J. T. Morton	Germany, 21 pkgs.	Charles and Fox
		Caoutchouc —		Caustic Potash —		Copper Sulphate —	
		Rangoon, 365 c.	L. & I. D. Jt. Co.	France, 104 c. 19 pkgs.	Carey & Sons	Germany, 33 pkgs.	Charles and Fox
		E. Indies, 1 cs. 129 c.	"	" 104 c.	Spies, Bros. & Co.	U. States, 350	Williams, Torrey & Co.
		Ceylon, 3	"				

Cream of Tartar—

France,	5 pks.	F. C. Devon & Co.
"	20	W. C. Bacon & Co.
"	2	Allan, Brs. & Co.
"	10	M. Ashby, Ltd.
"	10	B. & F. Wf. Co.
Spain,	6	"

Dextrine—

Germany,	75 pks.	M. D. Co.
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Dyestuffs—

Argols		
A. Turkey,	20 pks.	Thames S. T. & L. Co.

Cutch		
Rangoon,	500 pks.	Wallace Brs. & Co.
"	500	Huttenbach & Co.

Extracts		
Belgium,	98 pks.	T. H. Lee
Singapore,	6	Evans & White
Norway,	3	W. E. Bott & Co.
Denmark,	1	Bailey and Leatham
France,	185	L. J. Levinstein & Sons
Belgium,	100	"
France,	15	B. & N. Wf. Co.
"	15	Rosenberg & Co.

Gambler		
Singapore,	1056 pks.	Williams, Torrey & Co.
E. Indies,	84	Ross & Deering
"	168	R. & J. Henderson

Indigo		
E. Indies,	30 cts.	R. von Glehn & Sons
"	23	Arbuthnot, Latham & Co.

Madder		
N. Russia,	5 pks.	Ross & Deering

Myrabolama		
B. Indies,	1,330 pks.	L. & I. D. Jt. Co.
"	2,194	Baxter & Hoare
"	9,543	W. Shelcott
"	668	J. Graves
"	2,732	A. Hagan

Orchella		
Ceylon,	19 pks.	L. & I. D. Jt. Co.

Shumac		
Belgium,	14 pks.	D. C. Thomas & Sons
Italy,	50	Skilbeck Brs.
"	14	Harold Brs.

Turmeric		
E. Indies,	330 pks.	Lucas & Spencer's Wf. Ltd.
"	252	Wrightson & Son
"	91	H. A. Litchfield & Co.

Valonia		
A. Turkey,	40 t.	Higgins & Clarke
"	137	A. & W. Nesbitt
"	52	A. Laming & Co.
"	6	Boucher, Mortimore & Co.

Dyestuffs (otherwise undescribed)

France,	66 pks.	B. & F. Wf. Co.
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Farina—

Germany,	50 pks.	Prop. Chmblin's Wf.
"	50	M. D. Co.
Holland,	50	J. Knill & Co.
"	50	J. Barber & Co.
"	100	Ohlenschlager Brs.
Italy,	235	Wrightson & Son
France,	7	Hernu, Peron & Co.

Gamboge—

E. Indies,	6 cs.	Kaltenbach & Schmitz
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Glucose—

Singapore,	6 pks.	L. & I. D. Jt. Co.
Germany,	200 pks.	1,536 c. W. Grose & Co.
"	50	399 Pillow Jones & Co.
"	50	425 T. M. Duché & Sons
Holland,	100	100 Prop. Scott's Wf.
"	800	800 W. Dutson & Co.
France,	300	300 Barrett, Tagard & Co.
"	400	400 L. Norman & Co.
U. States,	1,167	1,169 R. G. Hall & Co.
"	2,000	2,000 Fellows, Morton & Co.
"	200	200 J. Barber & Co.
"	1,000	1,000 Humphrey & Co.
"	150	827 Prop. Scott's Wf.
"	275	1,287 Ohlenschlager Brs.
"	50	283 J. Keiller & Son, Ltd.
"	50	100 H. Lorenz

"	150	85t Crosse & Blackwell
"	200	1,100 T. M. Duché & Sons
"	100	600 Deering & Prop.
"	250	1,410 Chmblin's Wf.

Guano—

Germany,	1 t.	L. & I. D. Jt. Co.
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Lead Acetate—

Germany,	40 pks.	H. Lorenz
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Manure—

E. Indies,	200 t.	Cornwell, Son & Co.
"	100	A. Hunter & Co.
France,	5	J. Burnett & Sons

Methyl Alcohol—

U. States,	125 brls.	J. Kertel
"	60	W. Pope & Co.
Belgium,	6 cks.	Lister & Biggs

Mica—

E. Indies,	£340	J. Mitchell
"	462	W. M. Smith & Sons

Mirbane Oil—

Holland,	1 pkge.	Krayer, Back & Co.
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Ochre—

France,	42 cks.	D. Storer & Sons
Holland,	8 pks.	Philipps & Graves
Germany,	6 cks.	Taylor Brs.

Oxalic Acid—

Holland,	6 cks.	Beresford & Co.
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Paraffin Scale—

U. States,	360 brls.	Anglo-American Oil Co.
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Paraffin Wax—

U. States,	1,000 cs.	Anglo-American Oil Co.
"	550 brls.	H. Hill & Sons

Phosphate of Lime—

France,	125 t.	A. Hunter & Co.
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Phosphate Rock—

France,	570 t.	Anglo-Cont. Guano Works
Belgium,	230	R. W. Gould & Co.
Holland,	3	H. & E. Albert
Belgium,	280	Odams Chmel Manure Co.

Pitch—

Sweden,	125 brls.	E. G. Sieveking
"	125	J. F. Gabriel

Plumbago—

Ceylon,	445 brls.	R. G. Hall & Co.
"	174 cks.	J. Thredder Son & Co.
Germany,	15 brls.	"
"	20 cs.	T. H. Lee
Ceylon,	107 brls.	Beresford & Co.

Potash—

Canada,	78 c.	Charles & Fox
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Potassium Bicarbonate—

Holland,	5 cks.	A. & M. Zimmermann
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Potassium Carbonate—

Germany,	200 c.	C. J. Capes & Co.
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Potassium Cyanide—

Germany,	8 pks.	Beresford & Co.
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Potassium Hydrate—

France,	6 pks.	Spies Brs. & Co.
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Pumice Stone—

Italy,	6 t.	J. Knill & Co.
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Rosin—

U. States,	3,700 brls.	Moore & Hole
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Saltpetre—

Germany,	20 cks.	76 bgs. P. Hecker & Co.
"	104	C. Wimple & Co.
"	40	J. Hall & Son
"	70	T. Merry & Son
"	4	Petri Brs.
"	45	Brown & Elmslie
E. Indies,	549 bgs.	C. Wimple & Co.
"	493	Ralli Brs.
"	738	Lucas & Spencer's Wf., Ltd.

Sodium Hyposulphite—

Germany,	15 pks.	Beresford & Co.
Holland,	100	"
"	13	C. Lamb & Co.

Sodium Sulphide—

Belgium,	10 pks.	Escombe Brs. & Co.
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Starch—

Belgium,	284 pks.	F. Claydon & Co.
"	450	Leach & Co.
"	700	Prop. Scott's Wf.
"	60	F. Rosenthal & Co.
Germany,	590	Horne & Co.
"	40	C. T. Bowring & Co.
Holland,	906	Little & Johnston
"	125	Philipps & Graves
Italy,	901	Little & Johnston

Stearine—

Belgium,	3 cks.	Magee, Taylor, & Co.
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Sulphur—

France,	283 bgs.	G. Boor & Co.
France,	3 t.	G. Ward & Sons
Italy,	8	McDougall & Bonthron
"	100	W. E. Bott & Co.
"	100	Johnson & Hooper

Tartaric Acid—

Holland,	29 pks.	B. & F. Wf. Co.
France,	15	Domeier & Co.
Italy,	60	B. & F. Wf. Co.
Germany,	8	F. C. Devon & Co.

Tin oxide—

Germany,	5 pks.	Hambert
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Turpentine—

Savannah,	32,820 c.	H. Funck & Co.
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Ultramarine—

Holland,	4 cks.	Spies Brs. & Co.
"	40	Hernu, Peron & Co.
Germany,	21 pks.	Steinhoff, Sons & Co.
"	32 cks.	T. Hamilton
Belgium,	4 cs.	Leach & Co.
"	7	W. Harrison & Co.

Yarnish—

U. States,	65 pks.	Pinchin & Johnson
"	1	A. H. Muller
Belgium,	3	Wilson & Co.

Verdigris—

France,	5 pks.	B. & F. Wf. Co.
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White Lead—

France,	18 cks.	Burrell & Co.
"	10	J. Watts & Sons

Wood Pulp—

Norway,	246 pks.	W. G. Taylor & Co.
"	1,600	E. J. & W. Goldsmith
Holland,	1,301	"
Canada,	13,565	"
Portugal,	350	L. Knoblauch
Holland,	320	G. F. Green & Co.
Denmark,	280	"
Holland,	834	Moreton Cox Brs.
N. Russia,	4	Elkan & Co.
Germany,	325	S. C. Dk. Co.
"	325	J. Dickinson & Co.

Zinc Oxide—

Holland,	70 brls.	M. Ashby, Ltd.
Germany,	47	"
U. States,	100	"
Germany,	10 cks.	Beresford & Co.

LIVERPOOL.

Week ending August 23rd.

Acetic Acid—

Rotterdam,	20 blns.	"
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Acid—

Leghorn,	2 cks.	"
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Aniline Oil—

Genoa,	3 brls.	"
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Asbestos—

Montreal,	801 bgs.	"
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Barytes—

Rotterdam,	30 cks.	"
Antwerp,	13	100 bgs.

Borax—

Valparaiso,	12 sks.	"
Leghorn,	56 cks.	"

Caoutchouc—

Hamburg,	13 bls.	Brown, Geveke & Co.
Havre,	176 pks.	Cunard S. S. Co., Ltd.
Valparaiso,	5 bls.	Brants, Sons & Co.
"	8	F. M. Wolff

Castor Oil—

Genoa,	10 cs.	Pacific S. Nav. Co.
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Clitic Acid—

Messina,	2 cks.	"
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Colours—

Hamburg,	94 cks.	"
Stettin,	34	Evans, Sons & Co.
Ghent,	7 brls.	4 bxs. J. T. Fletcher & Co.

Cream of Tartar—

Barcelona,	5 cks.	"
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Dextrine—

Stettin,	20 bgs.	"
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Dyestuffs—

Argols		
Leghorn,	1 ck.	"
Extracts		
Ghent,	50 cks.	J. T. Fletcher & Co.

New York,

Bordeaux,	71 bxs.	8 brls. 1 kg.
Baltimore,	30 cks.	60
Shumac		
Barcelona,	100 bgs.	"
Palermo,	150	J. Kitchin
"	350	J. Young & Co.
"	675	"

Glucose—

New York,	250 brls.	"
Stettin,	8 cks.	"
Hamburg,	175	25 cs.

Guano—

B. Ayres,	3,250 bgs.	Williamson, Milligan & Co.
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Iodine—

Valparaiso,	11 brls.	"
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Limestone—

Antwerp,	3 crts.	J. T. Fletcher & Co.
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Magnesite—

Kymassi,	562 sks.	Tennants & Co.
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Manganesite Bricks—

Kymassi,	354	Tennants & Co.
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Paraffin Scale—

New York,	669 brls.	Standard Oil Co.
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Phosphate—

Drammen, 1,533
 Christiania, 3,251
 Skien, 2,836
 Rotterdam, 108
Zinc Oxide—
 Rotterdam, 76 cks.

MANCHESTER.*Week ending August 25th.*

Alumina Sulphate—
 Rotterdam, 45 cks.
Cellulose—
 Hamburg, 53 bls.
Chrome Alum—
 Rotterdam, 29 cks.
Colours—
 Rotterdam, 122 cks. 49 cs. 1 bx.
 Antwerp, 14
Dyestuffs—
Allzarine
 Rotterdam, 10 brls.
Annatto
 Bordeaux, 2 hhd.
Extracts
 Rotterdam, 10 cks.
Farina—
 Hamburg, 50 bgs.
Lead Acetate—
 Rotterdam, 30 cks.
Oxalic Acid—
 Rotterdam, 30 cks.
Potash—
 Rotterdam, 10 cks.
Soda—
 Rotterdam, 25 brls.
Starch—
 Rotterdam, 50 cs.
 Hamburg, 296
 Antwerp, 110
Tar Waste—
 Rotterdam, 4 cks.
Varnish—
 Rotterdam, 4 cks.
Waste Salt—
 Hamburg, qty.
Wood Pulp—
 Hamburg, 160 bls.
 Christiania, 6,022

HULL.*Week ending August 25th.*

Acetic Acid—
 Rotterdam, 10 blns. Lofthouse & Saltmer
 " 9 W. & C. L. Ringrose
Acid—
 Bari, 7 cks. Wilson, Sons, & Co., Ltd.
 Messina, 6
Albumen—
 Libau, 5 cs.
Alum—
 Rotterdam, 39 cks. W. & C. L. Ringrose
Asbestos—
 Rotterdam, 1 cs. Hutchinson & Son
Barytes—
 Antwerp, 120 bgs. Bailey & Leatham
 " 200 H. F. Pudsey
 Rotterdam, 40 cks. W. & C. L. Ringrose
 Bremen, 37 G. Holmes & Co.
 " 46 S. Tudor & Sons
 " 43
 Rotterdam, 4 Hutchinson & Son
 Antwerp, 46 Wilson, Sons, & Co., Ltd.
Camphor—
 Hamburg, 3 cs.
Castor Oil—
 Trieste, 120 cs. Wilson Sons, & Co., Ltd.
Chemicals (otherwise undescribed)
 Stettin, 1 ck. Wilson, Sons, & Co., Ltd.
 Bergen, 175 pks. " "
 Hamburg, 20 cks. " "
 Bremen, 1 Veltmann & Co.
 Dunkirk, 21 dms. Wilson, Sons, & Co., Ltd.
 52 pks.

Colours—

Rotterdam, 4 cs. 1 ck. 28 pkgs. 8 brls. Hutchinson & Son
 " 3 36 85 pkgs. W. & C. L. Ringrose
 Ghent, 18 Wilson, Sons, & Co., Ltd.
 Antwerp, 3 Bailey & Leatham
 " 1 Sissons Bros. & Co.
 Amsterdam, 2 W. & C. L. Ringrose
 Riga, 1 Wilson, Sons, & Co., Ltd.
 " 4 Hanger, Watson, & Harris
 Antwerp, 4
 " 13 brls. Wilson, Sons, & Co., Ltd.
 Danzig, 26 cks. " "
Dextrine—
 Stettin, 55 bgs. Wilson, Sons, & Co., Ltd.
Dyestuffs—
Allzarine
 Rotterdam, 5 brls. Hutchinson & Son
Extracts
 Antwerp, 2 cks. Veltmann & Co.
Madder
 Rotterdam, 3 cks. Hutchinson & Son
 " 1 W. & C. L. Ringrose
Shumac
 Palermo, 100 bgs. Wilson, Sons, & Co., Ltd.
 " 400
Farina—
 Stettin, 100 bgs. Wilson, Sons, & Co., Ltd.
 Ghent, 164 cs. " "
 Hamburg, 400
 " 100
Glucose—
 Stettin, 500 bgs. 50 cks.
 Dunkirk, 100
Kaolin—
 Rotterdam, 20 cks. Reckitt & Sons
Kelp—
 Stavanger, 1 pcl. Wilson, Sons, & Co., Ltd.
Manure—
 Ghent, 81 t. 500 bgs. Wilson, Sons, & Co., Ltd.
 Stavanger, 940 " "
Paint—
 Hamburg, 7 cs. Blundell, Spence, & Co.
Paraffin Wax—
 Hamburg, 15 bgs. Wilson, Sons, & Co., Ltd.
Phosphate—
 Antwerp, 50 t. Bailey & Leatham
Pitch—
 Archangel, 300 brls.
 Amsterdam, 15 cks. W. & C. L. Ringrose
Pumice Stone—
 Messina, 24 cs. Wilson, Sons, & Co., Ltd.
Pyrites—
 Huelva, 1,430 t.
Soap—
 Bari, 10 cs. Wilson, Sons, & Co., Ltd.
Soda—
 Rotterdam, 1 ck. W. & C. L. Ringrose
Starch—
 Antwerp, 128 cs. Bailey & Leatham
 Amsterdam, 20 bgs. W. & C. L. Ringrose
 Rotterdam, 10 cs. Hutchinson & Son
 Bremen, 2,087 Veltmann & Co.
 Antwerp, 200 Wilson, Sons, & Co., Ltd.
Stearine—
 Rotterdam, 34 brls. Wilson, Sons, & Co., Ltd.
Sulphur—
 Catania, 767 pks. Wilson, Sons, & Co., Ltd.
Tar—
 Drontheim, 36 brls. Bailey & Leatham
 Archangel, 1,195

Danzig, 2 cks. Wilson, Sons & Co., Ltd.
Tar Oil—
 Archangel, 50 brls.
Tartar—
 Bari, 2 cks. Wilson Sons, & Co., Ltd.
 Bordeaux, 8 Rawson & Robinson
Tartaric Acid—
 Rotterdam, 2 brls. Hutchinson & Son
Ultramarine—
 Rotterdam, 5 cks. W. & C. L. Ringrose
 " 4 Storry, Smithson & Co.
 " 6 cs. 2 Hutchinson & Son

White Lead—
 Rotterdam, 43 cks. Hutchinson & Son
 Rotterdam, 34 Tudor & Sons
Wood Pulp—
 Helsingfors, 192 bls. J. Good & Sons
 " 365 Furley & Co.
 Norrkoping, 120 Bailey & Leatham
 Stettin, 31 Wilson, Sons, & Co., Ltd.
Zinc Oxide—
 Rotterdam, 20 cks. Hanger, Watson & Harris
Zinc White—
 Rotterdam, 40 cks. Hutchinson & Son

GLASGOW.*Week ending August 30th.*

Acetate of Lime—
 New York, 372 bgs.
Arachide Oil—
 Rotterdam, 3 cks. J. Rankine & Son
Barium Sulphate—
 Antwerp, 300 bgs. 18 cks.
Barytes—
 Rotterdam, 38 pkgs.
Carbonic Acid—
 Hamburg, 3 cks.
Carbonic Acid—
 Rotterdam, 15 tubes J. Rankine & Son
Chemicals (otherwise undescribed)
 Hamburg, 10 cs.
Colours—
 Hamburg, 2 cks.
 Rotterdam, 2 cs. 4 brls. J. Rankine & Son
 " 22 pkgs.
Cottonseed Oil—
 New York, 100 brls.
Dyestuffs—
Allzarine
 Rotterdam, 39 cks. J. Rankine & Son
 " 136 pkgs.
Extracts
 Antwerp, 5 cks.
Glucose—
 New York, 149 brls.
Guano—
 Iceland, 784 bgs.
Nitrate—
 Rotterdam, 4 cks. J. Rankine & Son
Paint—
 New York, 2 brls.
Paraffin Scale—
 New York, 256 brls.
Rosin—
 New York, 897 brls.
Soap—
 New York, 50 brls. 5 cs.
Starch—
 New York, 200 sks. J. Osborne & Co.
 Antwerp, 20 cs.
 Hamburg, 20
Tallow—
 New York, 25 tres.
Tartar—
 Bordeaux, 3 cks.
Ultramarine—
 Rotterdam, 3 cks. J. Rankine & Son

Varnish—
 New York, 8 cs. 8 brls.
Waste Salt—
 Hamburg, 508 bgs. 264 t.
White Lead—
 Rotterdam, 38 cks. 19 bgs. J. Rankine & Son
 Antwerp, 3
Wood Pulp—
 Rotterdam, 170 bls. J. Rankine & Son
 Christiania, 810
Zinc Oxide—
 New York, 162 brls.
 Antwerp, 2 cks. J. Rankine & Son
 Rotterdam, 10
Zinc White—
 Rotterdam, 100 cks. J. Rankine & Son

TYNE.*Week ending August 25th.*

Alkali—
 Rotterdam, 27 bgs. Tyne S. S. Co.
Aluminium—
 Antwerp, 1 cs. Tyne S. S. Co.
Barytes—
 Antwerp, 244 pkgs. 72 cks. Tyne S. S. Co.
Carbonic Acid Gas—
 Rotterdam, 50 tubes. Tyne S. S. Co.
Extracts—
 Ghent, 26 cks.
Glucose—
 Rotterdam, 10 cks. Tyne S. S. Co.
 Hamburg, 10
Limestone—
 Antwerp, 1 crt. Tyne S. S. Co.
Paint—
 Hamburg, 40 dms. Tyne S. S. Co.
Salt—
 Hamburg, 450 t. Clephans & Wiencke
Starch—
 Rotterdam, 158 cs. Tyne S. S. Co.
White Lead—
 Antwerp, 28 brls. Tyne S. S. Co.
Zinc Oxide—
 Antwerp, 25 brls. Tyne S. S. Co.

GOOLE.*Week ending August 22nd.*

Alum—
 Rotterdam, 15 cks.
Aniline Colours—
 Boulogne, 1 cs.
Antimony—
 Boulogne, 4 cks.
Caoutchouc—
 Boulogne, 6 cks.
Chemicals (otherwise undescribed)
 Rotterdam, 1 cs.
Dyestuffs (otherwise undescribed)
 Rotterdam, 47 pkgs.
 Boulogne, 5 4 cs. 21 cks.
 Ghent, 2 3
Plumbago—
 Boulogne, 2 cs.
Potash—
 Rotterdam, 16 cks.
 Dunkirk, 38 dms.
Saltpetre—
 Rotterdam, 100 bgs.
Waste Salt—
 Hamburg, 424 t. 500 bgs.

GRIMSBY.*Week ending August 25th.*

Aniline Dyes—
 Antwerp, 35 pkgs.
 Hamburg, 81
Barytes—
 Antwerp, 83 bgs.
Caoutchouc—
 Hamburg, 8 cs.
 Antwerp, 2
 Rotterdam, 1
Chemicals (otherwise undescribed)
 Hamburg, 17 cs.
Zinc Ashes—
 Antwerp, 15 crts.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.*Week ending August 29th.*

Alkali—		
Malta, 6 .	£6	
Aluminous Cake—		
Calcutta, 36 .	£125	
Ammonia—		
Lyttelton, 9 cs.	£18	
Ammonia Salts—		
Dunedin, 3 cs.	£15	
Ammonium Carbonate—		
Melbourne, 20 cs. 5 c.	£22	
New York, 21 t. 3	650	
Marseilles, 1 8	48	
Ammonium Chloride—		
Bussorah, 1 t.	£36	
Stettin, 34 cks.	240	
Calcutta, 5 c.	10	
Ammonium Sulphate—		
Grenada, 2 t.	£24	
Boston, 50	700	
Arsenic—		
Sydney, 2 t.	£32	
St. Petersburg, 10 2 c.	160	
Napier, 12 10	191	
Wellington, 5	83	
Barytes Nitrate—		
Passages, 1 t. 10 c.	£30	
Bleaching Powder—		
Melbourne, 11 t. 5 c.	£129	
Boracic Acid—		
Melbourne, 7 cks.	£75	
Borax—		
Sydney, 2 t.	£24	
Hamburg, 12 cks.	90	
Carbolic Acid—		
Antwerp, 8 cns.	£10	
Calcutta, 20 drs.	6	
Rotterdam, 9 t. 14 c.	195	
Sydney, 10 cs.	19	
Bombay, 5	19	
Hong Kong, 20 drs.	19	
Hamburg, 80 cks.	586	
Caustic Soda—		
Newcastle, 1 t. 15 c.	£16	
Auckland, 10 11	87	
Samarang, 13 8	751	
Singapore, 3 6	6	
Wellington, 5 9	50	
Chemicals (otherwise undescribed)		
Melbourne, 2 c. 20 kgs.	£25	
Cape Town, 3 1 ck.	25	
Madras, 4	14	
New York, 37 cks.	500	
Rio de Janeiro, 4	16	
Antwerp, 20 drs.	75	
Citric Acid—		
Odessa, 6 c.	£44	
Melbourne, 11	71	
St. Petersburg, 3 t. 10 6 cks.	678	
Hamburg, 3	101	
Smyrna, 1 kg.	5	
Genoa, 5 kgs.	29	
Oporto, 10 4	70	
Moscow, 10	70	
Rotterdam, 1	8	
Madras, 1	8	
Auckland, 1	7	
Sydney, 5	35	
Wellington, 1	8	
Coal Products—		
Aniline Dyes		
Sydney, 1 cs.	£5	
Melbourne, 2	30	
Calcutta, 2	131	
Aniline Salts		
New York, 54 cks.	£300	
Anthracene		
Rotterdam, 64 cks.	£380	
Benzol		
Treport, 42 cks.	£152	
Terneuzen, 14 drs.	118	
Boulogne, 10 pchs.	76	
Rotterdam, 39 34 drs. 43 pkgs.		

Coal Tar Dyes

Melbourne, 1 cs.	£7	
Creosote		
Bordeaux, 3,000 brls.	£1,444	
Naphtha		
Canterbury, 20 drs.	£20	
Sydney, 3 cs.	50	
Naphthaline		
Dunedin, 20 cks.	£20	
Nitro-Naphthaline		
Brussels, 3 cks.	£25	
Pitch		
Galatz, 60 brls.	£17	
Alexandria, 400	123	
Antwerp, 850 t.	1,192	
Havre, 600	975	
Ancona, 2,051	2,500	
Dorlt, 150	300	
Helsingfors, 60	95	
New York, 1,737 bgs.	290	
Rangoon, 12 cks.	284	
Boston, 500	284	
Tar		
Samarang, 150 cks.	£87	
Helsingfors, 600 brls.	369	
Demerara, 10	11	
Natal, 125 drs.	27	
Calicut, 45 brls.	27	
Auckland, 8 pkgs.	8	
Wellington, 22	6	
Tar Oil		
Wellington, 30 drs.	£10	
Dunkirk, 12 cks.	42	
Gothenburg, 258	178	
Copper Sulphate—		
Melbourne, 1 t.	£15	
Odessa, 3 3 c.	45	
Paris, 15 2	228	
Antwerp, 12	168	
Treport, 17 10	263	
Bordeaux, 8 15	131	
Leghorn, 11	150	
Hamburg, 5 3	75	
Cream of Tartar—		
Melbourne, 2 t. 10 c.	£160	
Launceston, 1	65	
Disinfectants—		
Melbourne, 22 cs. 100 dms	£147	
Bangkok, 6 pkgs.	10	
Hiogo, 70	31	
Kurrachee, 40 cks.	22	
Bombay, 400 cks.	190	
Natal, 13 c.	24	
Sydney, 27 cs.	75	
Disinfectants and Ammonia—		
Rangoon, 3 cs.	£17	
Guano—		
Dunedin, 20 t.	£200	
Hydrochloric Acid—		
Bombay, 10 pkgs	£12	
Lead Acetate—		
B. Ayres, 1 t. 10 c.	£30	
Manure—		
Trinidad, 15 t.	£160	
Lisbon, 18 6 c.	75	
Jamaica, 10	107	
Stettin, 24 12	100	
Rouen, 106	335	
Morlaix, 112 10	759	
Gothenburg, 125	315	
Libau, 172	441	
Danzig, 89 2	450	
Harlingen, 60 14	169	
Oxalic Acid—		
Demerara, 11 t. 18 c.	£375	
Phosphoric Acid—		
Demerara, 20 t.	£278	
Boulogne, 5 c.	18	
Phosphorus—		
Melbourne, 10 cs.	£101	
Las Palmas, 4	44	
Teneriffe, 2	22	
Potash—		
Suez, 5 c.	£12	
Potash Crystals—		
Dunedin, 9 c.	£45	
Lyttelton, 9	45	
Potash Salts—		
Auckland, 14 t. 7 c.	£2,160	
Potassium Bichromate—		
Melbourne, 10 c.	£23	
Potassium Chlorate—		
Boston, 2 t. 10 c.	£165	

Potassium Cyanide—

Shanghai, 5 cs.	£56	
Delagoa Bay, 4	19	
Potassium Prussiate—		
Calcutta, 2 c.	£9	
Saltpetre—		
Melbourne, 2 t. 11 c.	£59	
Dunedin, 2	46	
Lisbon, 1 2	24	
Alexandria, 8 8	170	
Santos, 4 18	115	
Oporto, 7 7	153	
Sheep Dip—		
B. Ayres, 10 t. 18 c. 1,000 cs.	£3 790	
Calcutta, 150 drs.	25	
Gisborne, 110 cs.	220	
Napier, 250	500	
Soda Ash—		
Samarang, 7 t. 2 c.	£28	
Sourabaya, 7 2	28	
Soda Crystals—		
Newcastle, 1 t.	£2	
Sodium Arseniate—		
Bremen, 17 c.	£30	
Sodium Bicarbonate—		
Wellington, 1 t.	£7	
Sodium Carbonate—		
Wellington, 7 c.	£8	
Sodium Silicate—		
Jamaica, 1 t. 5 c.	£5	
Sodium Sulphate—		
Ghent, 55 t.	£40	
Sulphur—		
E. London, 20 cks. 20 kgs.	£28	
Sulphuric Acid—		
Natal, 10 cs.	£8	
Superphosphate—		
Dunedin, 20 t.	£60	
Mauritius, 346 19 c.	1,388	
Bundaberg, 20 9	100	
Tartaric Acid—		
Melbourne, 2 t. 10 c.	£234	
Mauritius, 5	12	
Madras, 5 cs.	10	
Sydney, 1 10	142	

LIVERPOOL.*Week ending August 29th.*

Acids—		
Callao, 3 q.	£5	
Alum—		
Montreal, 3 t. 18 c.	£18	
Malaga, 2 19	17	
Varna, 4 18	33	
Alexandria, 6 15	40	
Alum Cake—		
Dunedin, 2 t. 2 c. 3 q.	£7	
Calcutta, 60 8	170	
Ammonium Carbonate—		
Marseilles, 17 c.	£23	
Vigo, 16	28	
Stettin, 1 t. 5	41	
Hamburg, 10 1 q.	18	
Rotterdam, 14	27	
Barcelona, 10	18	
Valparaiso, 1 4 2	44	
Yokohama, 1 6 1	49	
Ammonium Chloride—		
Marseilles, 1 t. 4 c.	£8	
Smyrna, 1 t.	36	
Galatz, 4 3 q.	6	
Varna, 6	10	
Kurrachee, 1 15	63	
Alexandria, 7	259	
Barcelona, 2	74	
Ammonium Sulphate—		
Valencia, 122 t. 18 c. 2 q.	£1,773	
La Pallice, 50	633	
Demerara, 72 5	987	
Sourabaya, 51 4 1	714	
Nickerie, 5	75	
Amorphous Phosphorus—		
Hiogo, 13 c. 2 q.	£200	
Maranham, 4 2	22	
Arsenic—		
Cartagena, Sp., 1 t. 3 c.	£17	
Lisbon, 4 1 q.	3	
Asbestos—		
B. Ayres, 1 cs.		

Callao, 2		
Cartagena, Sp., 1		
Demerara, 2		
Maranham, 1		
Bleaching Powder—		
Baltimore, 227 cks.	7 brls.	
Boca, 450	125 cs.	
Boston, 15		
Calcutta, 113	10	
Corfu, 73	35	
Genoa, 73	20	
Maranham, 68	15 10 cs.	
Montreal, 16	40	
New York, 14	14	
Passages, 58		
St. Petersburg, 6		
Barcelona, 15		
B. Ayres, 40		
Havana, 16		
Philadelphia, 14		
Rio de Janeiro, 58		
San Sebastian, 58		
Borax—		
Valparaiso, 2 t. 7 c.	£25	
Santos, 19 3 q.	26	
Hamburg, 1	20	
Rotterdam, 24 11	494	
Montreal, 2 11 2	55	
Calcined Magnesia—		
Palermo, 2 cs.		
Vera Cruz, 3		
Calcium Chloride—		
B. Ayres, 4 t. 12 c.	£14	
Camphor—		
Tonala, 1 cs.		
Carbolic Acid—		
New York, 2 t. 10 c.	£152	
Newport News, 6	315	
Hong Kong, 14 3 q.	11	
Hamburg, 11 9	603	
Rotterdam, 6 4 1	285	
Stettin, 1	72	
Rio de Janeiro, 13	19	
Philadelphia, 9	22	
Marseilles, 19 2 3	1,200	
Genoa, 1 7	52	
Halifax, 4 2	17	
Castor Oil—		
Havana, 25 cs.		
B. Ayres, 24		
Caustic Soda—		
Boca, 2 dms.		
Bombay, 28		
Boston, 233		
B. Ayres, 50		
Callao, 100		
Chatham, 10		
Dunedin, 28		
Galatz, 76	150 kgs.	
Nagasaki, 75		
New York, 55 brls.	40	
Oporto, 120		
Patras, 100		
Pernambuco, 150		
Rosario, 70		
Shanghai, 33	10	
Stettin, 100		
Susse, 100		
Sydney, 45		
Volo, 105		
Algoa Bay, 6		
Antwerp, 50		
Barcelona, 250		
Catania, 40		
Corfu, 40	50	
Cuidad Bolivar, 20		
Fiume, 45		
Haifa, 6		
Leghorn, 35		
Malaga, 95		
Maranham, 15		
Milwaukee, 200		
Norrkoping, 5		
Parahyba, 15		
Quebec, 30		
Valencia, 10		
Chemicals (otherwise undescribed)		
Bussorah, 10 c.	£18	
Rotterdam, 7	13	
Venice, 1	36	
Montreal, 1	36	
Genoa, 3 10	128	
Naples, 1	37	
Philadelphia, 13	448	
Calcutta, 6 15	254	

China Clay—

Boston,	450 t.
Calcutta,	5
Seville,	30 bgs.
Barcelona,	10
Bombay,	18
Naples,	20

Citric Acid—

Halifax,	1 c.	£7
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Coal Products—**Alizarine**

Boston,	25 cks.
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Aniline Colours

Calcutta,	5 cs.
Montreal,	5 pkgs.

Aniline Dyes

Calcutta,	1 cs.
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Aniline Oil

Genoa,	6 dms.
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Aniline Salts

Valleyfield, P.Q.,	1
Buda Pesth,	10

Naphthol

New York,	16 cks.
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Pitch and Tar

Ibrail,	115 brls.
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Tar

Galatz,	25 brls.
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Colours—

Malta,	1 ck.
New York,	1

Copperas—

Tripoli,	3 t.
Beyrout,	4 5 c.
Syria,	5

Copper Sulphate—

M. Video,	8 t.	2 c.	1 qr.	£109
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Galatz,	1	15
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Christiania,	5	1	3	68
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Gothenburg,	1	16	2	25
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Norrköping,	1	19	3	26
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Valparaiso,	3	15	30
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Bordeaux,	65	4	2	1,118
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Amsterdam,	3	41
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Madras,	1	5	18
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Singapore,	5	78
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St. Petersburg,	5	2	2	73
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Antwerp,	10	7
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Santos,	10	3	15
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Nantes,	20	18	307
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Cream of Tartar—

Montreal,	1 t.	18 c.	£102
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Cresylic Acid—

Ghent,	1 t.	13 c.	£16
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Disinfectants—

New York,	1 t.	18 c.	3 q.	£20
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Dried Blood—

Huelva,	15 t.	6 c.	£119
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Gypsum—

New York,	29 t.	8 c.	£86
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Iron Chromate—

Antwerp,	4 t.	1 c.	£36
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Iron Oxide—

Ghent,	10 c.	1 q.	£8
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Lime—

Demerara,	58 t.
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Litharge—

Antwerp,	5 cks.
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Magnesia—

B. Ayres,	1 cs.	1 hd.
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Magnesium Carbonate—

Vera Cruz,	10 cs.
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Magnesium Sulphate—

Bourgas,	2 cks.
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B. Ayres,	4	7 brls.
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Demerara,	12
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Manganese Ore—

Hamburg,	15 cks.
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Manure—

Havre,	200 t.	6 c.	2 q.	£1 074
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St. Nazaire,	957	13	4,732
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Marseilles,	157	3	830
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Genoa,	141	5	1,027
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Gd. Canary,	10	40
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Valencia,	80	15	1	240
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Nickel—

Rio de Janeiro,	22 bxs.
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Paint—

Callao,	10 kgs.
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Caxias,	20
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Colombo,	8 cks.
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Curacao,	150
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Demerara,	60	20 dms.
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Hong Kong,	1	25 brls
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Humacao,	1
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Lisbon,	1
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Mayaguez,

M. Video,	52 pkgs.	21 cs.
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Nassau,	24	2
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San Juan,	36	10 dms.
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Sierra Leone,	7	45
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Hamburg,	1	1
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Maranham,	1	1
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Matanzas,	1	1
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Monrovia,	68	8
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Rio de Janeiro,	93	1 brl.
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Valparaiso,	93	1 brl.
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Painters' Colours—

Adelaide,	8 cks.
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Antwerp,	18	12 brls.
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Belize,	59 kgs.	5
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Boca,	308	140 cs.
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Bombay,	160	10
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B. Ayres,	11	11
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Callao,	11	10
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Ceara,	11	11
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Corfu,	3	3
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Havana,	4	3
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Lisbon, 1 bdle.	1	34	8	1 bx.
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Montreal,	11	7
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Monterey,	25	8
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New York,	21	10
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Para,	4	10
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Patras,	1	1
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Pernambuco,	1	1
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Philadelphia,	100	100
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San Francisco,	20	15
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San Sebastian,	20	6
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Tonala,	15	6
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Accra,	4 dms.	21	19
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A'sterdam,	21	7
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Brass,	5	26
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Macassar,	2	11
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Manaos,	2	2
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Panama,	2	1
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Rio de Janeiro,	4	1
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Sherbro,	18 dms.	4
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Valparaiso,	20	6
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Yokohama,	6	6
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Paraffin Wax—

Para,	30 cs.
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Antwerp,	15	9 c.	3 q.	£25
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Phosphate—

Nickerie,	10 t.	£25
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Lisbon,	9 c.	3 q.	9
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Phosphorus—

Hiogo,	20 cs.	£254
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Shanghai,	15	160
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Odessa,	8	120
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Picric Acid—

New York,	17 c.	3 q.	£80
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Potassium Bicarbonate—

Antwerp,	4 t.	18 c.	3 q.	£196
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Potassium Bichromate—

Odessa,	8 c.	£17
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Lisbon,	2	1 q.	5
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Vera Cruz,	3	2	9
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Potassium Carbonate—

New York,	1 t.	4 c.	£27
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Valencia,	3	5	3 q.	43
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Lisbon,	2	7	55
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Oporto,	5	7
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Potassium Chlorate—

New York,	23 t.	15 c.	£1,394
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Shanghai,	4	5	249
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Hiogo,	12	10	667
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Batavia,	10	4	12
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Sydney,	10	564
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Cape Town,	1	8	56
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Kotterdam,	1	8	85
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Maranham,	1	13	1 q.	85
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Santos,	2	122
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Copenhagen,	5	206
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Boston,	12	10	716
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Rioja,	3	10	206
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Potassium Cyanide—

Montreal,	1 c.	£6
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Potassium Prussiate—

B. Ayres,	4 c.	£22
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Yokohama,	11	1 q.	50
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Rio de Janeiro,	4	2	27
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Potassium Sulphate—

Lisbon,	2 c.	2 q.	£2
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Salt—

Antwerp,	92 t.
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Boston,	220
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Calcutta,	3,619
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Ghent,	160
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Halifax,	523
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Manaos,	102	6 c.
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Melbourne,	100
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Montreal,	1,015	4
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Newfahrwasser,	842
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Newport News,	50
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New York,	415
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Old Calabar,	209
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Portland, Or.,

Pt. Natal,	590
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Quebec,	834
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Rangoon,	973
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Rotterdam,	300
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St John's, N'd.,	5	15
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St Petersburg,	700
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Sydney,	35
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Buguma,	20
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C. C. Castle,	50
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Gd. Bassam,	10
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Hamburg,	52	10
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Harbor Grace,	5
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Lagos,	100
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Richibucto,	230
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Rosario,	2	15
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Sierra Leone,	100
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Salt Cake—

Superphosphate —			
Nantes,	408 t.	1 c.	3 q £723
Tartaric Acid —			
Callao,		1 c.	£5
Halifax,		2	11
Havana,		2	15
Turpentine —			
Lagos,	10 dms.		
Varnish —			
Calcutta,	35 dms.		
Colombo,	12		
Seville,	6 cks.		
Whiting —			
Montreal,	8 cks.		
Zinc Chloride —			
Boston,	7 c.		£7

MANCHESTER.

Week ending August 30th.

Alum —			
Jaffa,	10 brls.		
Ammonia Salts —			
Rotterdam,	4 cks.		
Ammonium Sulphate —			
Dunkirk,	500 bgs.		
Aniline Oil —			
Austria,	1 dm.		
Colours —			
Antwerp,	10 kgs.		
Pitch —			
Antwerp,	9 t. 19 c.		
Tallow —			
Rotterdam,	15 cks.		
Tar Salts —			
Switzerland,	65 cks.		

HULL.

Week ending August 25th.

Aluminium —			
St. Petersburg,	6 cs.		
Ammonium Sulphate —			
Antwerp,	100 bgs.		
Dunkirk,	288		
Rotterdam,	1,145		
Bleaching Powder —			
Bari,	2 cks.		
Boston,	49		
Bremen,	5		
Fiume,	28		
Libau,	69		
Stettin,	78		
Borax —			
Stettin,	10 cks.		
Caustic Soda —			
Bari,	54 dms.		
Danzig,	216		
Hango,		1 ck.	
Hamburg,	37		
Libau,	155		
Riga,	90		
Stettin,	34		
Venice,	52		
Wyburg,		2 cks.	
Chemicals (otherwise undescribed)			
Amsterdam,	20 pkgs.		
Antwerp,		1 ck.	
Bari,	40		
Bremen,		25 cs.	
Copenhagen,		8 cks.	
Constantinople,		81	
Christiania,	35	38	5
	398 lbs.		
Danzig,	30		
Drontheim,	11		
Gothenburg,	13	225	8
Hamburg,	9	8	126
Libau,	110		
Messina,		7	
New York,		4	
Odessa,		134	
Rotterdam,		32	54
Riga,		1	254
Stettin,	119	16	
Trieste,		22	
Venice,		2	
Cottonseed Oil —			
Amsterdam,	101 cwt.		
Bremen,	17		
Copenhagen,	101		
Gothenburg,	102		
Hamburg,	910		
Konigsberg,	50		
Rotterdam,	1,207		
Stettin,	232		
Creosote —			
Copenhagen,	55 cks.		

Dyestuffs (otherwise undescribed)			
Boston,	9 cks.		
Christiania,	20 bls.		
Danzig,		1 cs.	
New York,		1	
Rotterdam,	2		
Rouen,	10		
Riga,		1	
Stettin,	152		
Linseed Oil —			
Bari,	7 cwt.		
Bergen,	27		
Copenhagen,	7		
Christiansund,	6		
Constantinople,	35		
Christiania,	553		
Drontheim,	40		
Hamburg,	122		
Rotterdam,	207		
Stavanger,	17		
Trieste,	183		
Venice,	70		

Manure —			
Copenhagen,	50 t.		
Dunkirk,	36		
Rouen,	276 bls.		

Ochre —			
Amsterdam,	8 cks.		
Hamburg,	1		

Painters' Colours —			
Amsterdam,	5 cks.		
Antwerp,	22	2 cs.	
Bari,	6		
Boston,	10		
Bremen,	1		
Bergen,		8 dms.	
Copenhagen,	1		
Catania,	5		
Christiansand,		16 kgs.	
Christiania,	48	60 pkgs.	
Dunkirk,	1		
Danzig,	10		
Drontheim,	11		
Fiume,	7		
Gothenburg,		3 cs.	
Helsingfors,	4	14	
Hamburg,		2	
Konigsberg,	8		
Messina,		15	
New York,	50		
Odessa,	414		
Rotterdam,	16	6	2
Rouen,	20		
St. Petersburg,	37	1	
Stettin,	6		
Trieste,	13		

Pitch —			
Boston,	2 cks.		
Rouen,	75 bls.		

Rosin —			
Rotterdam,	1 ck.		

Slag —			
Stettin,	396 t.		

Soap —			
Stettin,	1 cs.		

Stearine —			
New York,	35 cks.		

Tallow —			
Gothenburg,	10 cks.		
Rotterdam,	18		
Wasa,	89		

Tar —			
Antwerp,	7 cks.		
Helsingfors,	135		
Rotterdam,	50		
Uleaborg,	25		

Terra Alba —			
New York,	300 cks.		

Varnish —			
Amsterdam,	2 cks.		
Copenhagen,		5 bls.	
Danzig,		1 cs.	
Drontheim,	5		

GLASGOW.

Week ending August 30th.

Ammonium Carbonate —			
Montreal,	2 t. 16 c.		£90
Ammonium Sulphate —			
Hamburg,	50 t. 13 c.		£685
Bleaching Powder —			
Calcutta,	55 t. 1 c.		£665
Boracic Acid —			
Japan,	2 t. 10 c.		£85
Borax —			
Japan,	2 t. 19½ c.		£63
Caustic Soda —			
Philippines,	5 t. 2 c.		£45

Coal Products —			
Benzol			
Hamburg,	12 dms.		£260
Pitch			
Amsterdam,	200 t.		£280
Calcutta,		£25. 10s	
Gothenburg,	96 1¼ c.		£240
Cottonseed Oil —			
Philippines,			£46
Dyestuffs —			
Extracts			
Montreal,	6 t. 18¾ c.		£168
Fustic Extract			
Montreal,	4 t.		£130
Logwood			
Montreal,	6 t. 1 c.		£46
Dyestuffs (otherwise undescribed)			
Lisbon,	9 t. 13½ c.		£82
Linseed Oil —			
Straits,			£47
Philippines,	3¼ c.		24
Litharge —			
Calcutta,	3 t.		£43
Paint —			
Bombay,			£91
Colombo,			93
Singapore,			128
Painters' Colours —			
Calcutta,	5 t.		£95
Philippines,	9 15½ c.		113
Potassium Bichromate —			
Gothenburg,	9 t. 18¾ c.		£372
Slag —			
Rotterdam,	213 t.		£74
Sodium Sulphate —			
Lisbon,	5 t.		£—
Sulphuric Acid —			
Madras,			£126
Sulphuric Ether —			
Philippines,	30 gls.		£8
Tallow —			
Rotterdam,	5 t. 14 c.		£220
Turpentine —			
Philippines,	650 gls.		£71
Varnish —			
Huelva,	4 c.		£24
Christiania,	5 brls.		10
White Lead —			
Calcutta,	23 t.		£405

TYNE.

Week ending August 25th.

Alkali —			
Hamburg,	5 t. 18 c.		
Riga,	30	4	
Rotterdam,	1	1	
Venice,	7	14	
Alum Earth —			
Antwerp,	5 t. 6 c.		
Alumina Sulphate —			
Copenhagen,	16 c.		
Ammonium Carbonate —			
Leghorn,	1 t. 3 c.		
Antimony —			
Rotterdam,	5 t. 10 c.		
Arsenic —			
Leghorn,	18 c.		
Barium Binoxide —			
Dunkirk,	4 t.		
Barytes Carbonate —			
Hamburg,	36 t. 10 c.		
Bleaching Powder —			
Hamburg,	3 t. 11 c.		
Antwerp,	16	17	
St. Petersburg,	87	9	
Christiania,	2	12	
Bilbao,	32	7	
Danzig,	50	13	
Rotterdam,	9	17	
Venice,	2	10	
Copenhagen,	25	8	
Gothenburg,	3	8	
Calcined Magnesia —			
Genoa,	2 c.		
Caustic Soda —			
Hamburg,	10 t. 3 c.		
Antwerp,	11	2	
Seville,	6t	1	
St. Petersburg,	78	1	
Leghorn,	39		
Christiania,	5	16	
Ancona,	19	3	
Aarhus,	1	4	
Bilbao,	5	11	
Newfairwater,	10	3	
Riga,	19	8	
Copenhagen,	22	15	

Colours —			
Naples,		7 c.	
Ergasteria,		8	
Linseed Oil —			
Ergasteria,		12 c.	
Litharge —			
Gothenburg,	1 t.	3 c.	
Magnesia —			
Hamburg,	1 t.	13 c.	
Oxalic Acid —			
Newfairwater,	2 t.	3 c.	
Paint —			
Antwerp,		5 c.	
Siberia,		13	
Genoa,		1	
Arendal,		1	
Rotterdam,	5 t.	15	
Ergasteria,	2	8	
Phosphorus —			
Leghorn,		14 c.	
Potassium Bichromate —			
Aalborg,		16 c.	
Slag —			
Rotterdam,	209 t.		
Soda —			
Christiania,	10 t.	8 c.	
Aarhus,		3	4
Rotterdam,	20		
Bergen,		1	1
Molde,		1	12
Christiansund,	3	4	
Soda Ash —			
Lisbon,	25 t.	7 c.	
Genoa,		5	15
Christiania,		13	
Danzig,		30	7
Venice,		80	7
Copenhagen,		20	
Bergen,		5	
Sodium Hyposulphite —			
Copenhagen,	1 t.	1 c.	
Sodium Silicate —			
Rotterdam,	2 t.	16 c.	
Venice,	10	3	
Sulphur —			
Antwerp,	5 t.		
Riga,	65		
Superphosphate —			
Riga,	582 t.	12 c.	
Venice,	150	1	
Hamburg,	1,520	3	
Varnish —			
Naples,		11 c.	
White Lead —			
Lisbon,	5 t.	12 c.	
Copenhagen,	2	1	

GOOLE.

Week ending August 22nd.

Alkali —			
Dunkirk,	30 dms.		
Benzol —			
Boulogne,	24 cks.		
Caoutchouc —			
Calais,	1 bl.		
Chemicals (otherwise undescribed)			
Boulogne,	2 cks.		
Coal Products (otherwise undes.) —			
Boulogne,	1 ck.		
Ghent,	3	1 cs.	
Dyestuffs (otherwise undescribed)			
Hamburg,	65 cks.		
Manure —			
Boulogne,	75 bgs.		
Rouen,	392		
Pitch —			
Antwerp,	140 t.		

GRIMSBY.

Week ending August 25th.

Chemicals (<i>otherwise undescribed</i>)	
Antwerp,	11 cks. 12 bls.
Dieppe,	79
Hamburg,	4
Coal Products (<i>otherwise undes.</i>)—	
Dieppe,	1 cs. 27 cks.
Dyestuffs (<i>otherwise undescribed</i>)	
Dieppe,	4 cks.
Manure —	
Esbjerg,	285 t.

PRICES CURRENT.

WEDNESDAY, SEPT. 5th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	6/6	& 10/6
Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous	"	0	0 1¼
Oxalic	nett	0	0 3¼
Phosphoric, 1750°	"	0	1 0
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
(monohydrate)	"	5	10 0
(Pyrites, 168°)	"	3	0 0
(free from arsenic, 145°)	"	1	5 0
Sulphurous (solution) S.G. 1025	"	1	6 0
Tannic (pure)	per lb.	0	1 0
Tartaric	"	0	11
Arsenic, white powdered	nett per ton	13	17 6
Alum (loose lump)	"	5	2 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferic	"	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	"	0	2 ¼
" Carbonate	nett	0	0 3¼
" Muriate	per ton	23	0 0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	& 37/-
" Nitrate	per ton	44	0 0
" Phosphate	per lb.	0	0 10½
" Sulphate (grey) London	per ton	13	15 0
" (grey) Hull	"	13	11 3
Aniline Oil (pure)	per lb.	0	0 5½
Aniline Salt	"	0	0 5¼
Antimony	per ton	32	5 0
" (tartar emetic)	per lb.	0	0 9¼
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	15 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	nett per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	1 0
50/90	"	0	1 0
Carbolic Acid (crystallised 40°)	per lb.	0	0 5½
(crude 60°)	per gallon	0	1 7
Creosote (ordinary)	"	0	0 1¾
(filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30 % @ 120° C.	"	0	0 5¼
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	1	14 6
Solvent Naphtha, 90 % at 160°	per gallon	0	1 3
Lucigen and Wells Oils	"	0	0 2½
Copper	per ton	40	0 0
" Sulphate	"	14	10 0
" Oxide (copper scales)	"	39	5 0
Glycerine (crude)	"	15	0 0
(distilled S.G. 1250°)	"	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	5 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	2 6
" Litharge Flake (ex ship)	"	13	10 0
" Acetate (white)	"	25	0 0
" brown)	"	15	1 0
" Carbonate (white lead) pure	"	16	0 0
" Nitrate	"	18	1 0

Lime, Acetate (brown)	per ton	6	2 6
" (grey)	"	10	0 6
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	10 0
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	"	17	15 0
" Borate	per cwt.	2	12 6
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	2 0
Naphtha (Wood), Solvent	"	0	3 6
" Miscible, 60° O.P.	"	0	3 9

Oils:—

Cotton-seed	per on	21	0 0
Linseed	"	22	10 0
Petroleum, American	per gallon	0	0 5¼
Stearine	per ton	25	15 0
Phosphorus (yellow)	per lb.	0	2 2
(red)	"	0	2 9
Potassium (metal)	per oz.	0	3 7
" Bichromate	nett per lb.	0	0 4½
" Carbonate, 90% (ex ship)	per ton	16	15 0
" Chlorate	per lb.	0	0 6¼
" Cyanide, 98%	"	0	2 3
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
" (Caustic Potash) 75/80 %	"	20	0 0
" (Caustic Potash) 70/75 %	"	19	0 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	2 6
" Prussiate Yellow	per lb.	0	0 10½
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	7 6
Silver (metal)	per oz.	0	2 6½
" Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	17 6
" (Caustic Soda-ash) 48 %	"	4	0 0
" (Carb. Soda-ash) 48 %	"	4	0 0
" (Alkali) 58 %	"	3	12 6
" (Soda Crystals)	"	2	10 0
" Acetate (ex-ship)	"	14	5 0
" Arseniate, 45 %	"	11	0 0
" Chlorate	per lb.	0	0 7¼
" Borate (Borax)	net, per ton	21	10 0
" Bichromate	per lb.	0	0 3¼
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10	15 0	
" (74 % Caustic Soda)	"	9	15 0
" (70 % Caustic Soda)	"	8	15 0
" (60 % Caustic Soda)	"	7	15 0
" (60 % Caustic Soda, cream) (f.o.b.)	"	7	12 6
" Bicarbonate	"	5	12 6
" Hyposulphite	"	5	10 0
" Manganate, 30%	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 10½
" Nitrite, 98 %	per ton	29	10 0
" Phosphate	"	15	0 0
" Silicate (glass)	per ton	5	7 6
" (liquid, 100° Tw.)	"	4	5 0
" Stannate, 40 %	per cwt.	3	0 0
" Sulphate (Salt-cake)	per ton	0	17 6
" (Glauber's Salts)	"	1	5 0
" Sulphide	"	8	10 0
" Sulphite	"	5	7 6
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7¼
" Barium, 95 %	"	0	0 5
" Potassium	"	0	0 7½
Sulphur (Flowers)	per ton	7	5 0
" (Roll Brimstone)	"	5	7 6
" Brimstone: Best Quality	"	3	15 0
Superphosphate of Lime (26%)	"	2	7 6
Tallow	"	24	10 0
Tin Crystals	per lb.	0	0 6
English Ingots	"	74	10 0
Zinc (Spelter)	per ton	15	12 6
" Chloride (solution, 96° Tw.)	"	5	10 0

THE CHEMICAL TRADE JOURNAL

AND

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LATE ADVERTISEMENTS.

TENDER.

DARWEN CORPORATION.

TO TAR DISTILLERS.

THE Gas Committee of the above Corporation are prepared to receive TENDERS for all their production of Tar from 13,000 tons of Coal to March 31st, 1895.

Tenders, endorsed "Tar," to be sent to C. COSTEKE, Esq., Town Clerk, Darwen, on or before the 22nd inst.

Gas Works, Darwen,
September 8th, 1894.

THOMAS DUXBURY,
Manager.

Re THE LANCASHIRE ULTRAMARINE COMPANY, LIMITED,
IN LIQUIDATION.

TO BE SOLD BY AUCTION by Messrs. Casson and Harrison (in one lot) upon the premises at the Ultramarine Works, Backbarrow, near Ulverston, in the County of Lancaster, on Tuesday, September 25th, 1894, the whole of the PLANT, MACHINERY, and Good Will, as a going concern, with the unexpired term of Lease of the Premises, and all the Water Rights, together with the adjacent Dwelling House and Garden, which Lease expires on the 12th of May 1903.

Sale to commence at Two o'clock.
For catalogues of Plant and further particulars apply to the Auctioneers, at their offices, County Chambers, Ulverston.

FOR SALE, Doulton and Watts' Ware, viz., sixteen 30-gallon Receivers, with elbow pipes and taps; three 12 gallon Stills, heads and connection pipes; one small Condenser to ditto; nine Connection Pipes, 50 ft. long by 3 in. diameter.—J. S. ROUTH, Chesterfield.

CHEMIST WANTED for large Manure Works; young, unmarried man preferred; must produce evidence of competency and trust. Apply, with references, stating age and salary, to Dublin Vitriol Works, Ballybough Bridge.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

10 Words and under..... 2s. 6d. per insertion
Each additional 10 words..... 6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

10 Words and under..... 1s. 3d. per insertion
Each additional 10 words..... 3s. 3d.

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by Wednesday morning at the latest.

BLAST AND COUNTER BLAST.

AN article recently appeared in the London "Times" on the petroleum trade, which was so worded at the beginning as to lead readers to infer that what followed was authoritative. Whatever former articles may have been, the one in question is anything but authoritative. The article certainly is on the petroleum trade in one sense, but it is chiefly composed of a long, and not altogether fair tirade against the proposed 100° flash-point; written so as to constitute a special plea for the American oil trade, to the suppression of the claims of any other branch of the trade.

From outset to finish the Scottish traders are trotted out as being interested parties, who have stirred up an agitation on the flash-point to help themselves out of their present difficulties. These allegations are used as a red-herring to cover the real scent, which, if followed up, would show that those who decry the Scotch trade have considerable interests at stake, and are very much more interested parties than the Scotch oil makers. The statement that Mr. Gladstone has been sounded by a Scotch deputation as to the possibility of putting a duty on foreign petroleum will be an item of news to many.

With regard to the part actually played by the Scotch makers touching the flash-point question, it is not correct to say that the question was raised by them. Though Scotch scientists have given evidence at every Parliamentary investigation, save that made in 1883, still the Scotch traders have for years suppressed any effort to give prominence to the flash-point question, so as to avoid a rupture with the American Syndicate. Now, though the point has been again brought to the front, the Scotch oil distillers were not instrumental in doing so. As a matter of fact, most of the more influential members of the industry have even now taken little, if any, interest in the movement. It so happened this last time that a Scotchman had much to do with the question being again brought up, but those who have been the principal movers in the matter have absolutely nothing to do with the Scottish mineral oil industry. The injustice of alleging that the members of this industry have stirred the matter up to get themselves out of a hole is, therefore, very apparent.

What the recent agitation has really done for that industry has been to accomplish the long anticipated, by bringing into Scotland a large quantity of American oil, which is being sold at a price intended to undersell the Scotch producers. That, it must be admitted, is a very beneficial (?) result of lending aid to the 100° flash-point movement, which said movement, it is repeatedly averred by the American producers, has been bruited to make the Scotch industry once more remunerative.

Now, look at the situation of the American Syndicate. For years it has been selling oil at an absurdly low price, if not at a loss, solely to kill the Russian and Scotch trade. When it has accomplished its end, it does not need any great gift

of prescience to see what the Syndicate will do with prices—well, they certainly will not go on selling at a price almost devoid of profit.

The reduction of duty in Russia, and the proposal to raise the flash-point in this country, promise, however, to render futile all these years of competitive trading, and to shatter the hope of regaining a monopoly, just at the time its fulfilment looked most rosy. How very much, therefore, is the American Syndicate a deeply-interested party, set on keeping this country as an outlet for the doubtful oil which the American consumers are not so anxious to have. The Scotch makers dare not sell oil that is dangerous, when accidents would happen at the door of the works so to speak. With American oil it is different. The article in question says: "We are entitled to look somewhat narrowly at statements coming from an obviously interested source." In face of the foregoing, we are quite willing to accept this statement, and to apply it with full force to all the "kind" things those interested in the foreign trade have stated about the home traders. It is certainly as applicable in one case as the other.

Granted that the 100° flash benefits the Scotch makers to a small extent, it will also benefit the public to a very large extent. Now, keeping the low standard benefits *no one* but the American producers, while it does injury to the public daily. Which, then, is the more "obviously interested" party of the two?

Even though the article in question was written with the sole view of fostering the cause of the American Syndicate, still, that is no justification for departing from facts. The following paragraph is a specimen of how trustworthy the rest of the article must be: "Scotch mineral oil does not contain any of the very light paraffins. It is wanting, so to say, in the upper octave of the paraffin register." Now this is quite wrong. The whole range of the paraffin register is in the distillate from Scotch shale. There may be less naphtha than in American oil, but it is there all the same. If the Scotch makers could with impunity take advantage of the present low standard it would be greatly to their convenience to do so. But, as before stated, they cannot afford to kill people so near at home. Much is made of the incomparability of the statistics as to deaths and accidents from mineral oil. We want the following, however, explaining away, before unalleged "bogies" are knocked down. The populations of London and Scotland are practically comparable, and a larger proportion of the Scotch burn oil. Yet there were no accidents in Scotland till the introduction of cheap foreign oil, while in London, where American oil is burnt almost exclusively, there are dozens of deaths and hundreds of accidents annually.

Coming to the flash-point question itself, we are told that the arguments against the low flash-point are of two kinds, theoretical and practical, following which is a very insidiously misleading statement as to the relation between the 73° test of Abel, and the old erroneous open test at 100°, which, on the face of things, makes it look as if the practical arguments were false, and the remaining arguments merely theoretical fallacies. This has been made a source of profitable confusion, time after time, and yet once again is it made to serve that purpose. One is led to suppose that an oil which flashes at 73° by the Abel test would not give off inflammable vapour till about 100°F. under ordinary conditions. Mention of the fact that an oil flashing at 73° in Abel's small test cup, flashes much lower with a 9-inch closed vessel like the reservoir of a lamp, is carefully avoided; while the old tale about the high temperature of high-flash oils is

again trotted out, despite all the scientific evidence to the contrary. One thing is very certain. No oil will give an explosive mixture at a temperature below its flash-point. Seeing that the temperature of an oil burning in a lamp reservoir ranges from 80° to 90°F., an oil flashing at 100°F. must be infinitely safer than one flashing at 73°F.—a common summer temperature. Now, in this same article two time-worn accidents are quoted against the high-flash oil. The very multiplicity of the occasions on which these two cases have been quoted is of itself a strong proof of the paucity of *reliable* evidence against the safety of a high-flash oil. In describing them, however, there is such strong evidence of *suppressio veri* that they call for a word of explanation. Lord Romily, it is stated, lost his life through the upsetting of a lamp charged with an oil of 100° flash-point. That is all. There is no reference to the fact that in upsetting the lamp (which, by-the-by, had a metal reservoir, *à la* the "pet safety lamp" we hear so much about) the catch gave way, and the oil ran out over the papers on the table. Lord Romily left the room in safety, and would never have been killed had he not returned. Colza oil would have caused a similar effect. The second accident is the destruction of the *Goliath* training ship, "with the loss of many lives." Here an oil of much higher flash than was necessary was used. As if to suggest that the very high flash caused a very high temperature, it is stated that the oil produced so great a heat "that a boy who lifted one of the lamps involuntarily dropped it because it burnt his fingers." Now, compare the facts. Not a single life was lost by fire. A few deaths from drowning occurred. Comparing the number of lives saved with those lost, the latter number is marvellously small. The paragraph in the article conveys something very different. And now as to the other point. The lamp had burnt all night, so was naturally hot. But so hot was it, that the boy *carried* it along the deck and into the lamp room, where in setting it down he upset the lamp on the wick cuttings, which caught fire. The boy escaped. With a low flash oil he would have been enveloped in flames, and burnt seriously, if not fatally. And bear in mind the circumstances—a candle would have created the fire. How on earth, therefore, can either of these cases be used as arguments against the safety of an oil of 100° flash point? The very next paragraph of the article actually proves their futility. Note the conditions of the cases cited. In each the lamp was upset and the oil allowed to run on highly inflammable substances. Now, apply the following dictum:—"Accidents that arise from the breaking of a lamp or spilling of oil any way in the vicinity of a flame prove nothing whatever about the flash-point." Why! we have here the very foundations of the arguments used to decry the high flash oil, swept away and instantly demolished by the avowed utterance of the would-be defamer. And yet, after such a lapse, the same source of information (ignoring the pretensions of the average individual to at least a modicum of common sense), furnishes the following audacious statement:—"Tinkering with the flash point of the oil is mere quackery." Does not the latter appellation more fittingly apply to the use of *ad captandum* arguments, such as we have exposed, in order to bolster up the bad cause of would-be monopolists?

SOLID PETROLEUM AS AN INSECTICIDE.—Tree paint with a solution of solidified petroleum in water has been found to have an excellent effect as a preventative of the boring and other caterpillars. When syringed on to the plants it forms a lather like soap, but leaves no stain.

THE LIQUEFACTION OF HYDROGEN.

UP to the present time liquid air or nitrogen is the agent that has been most successfully used in the endeavours which have been made to reach the zero of temperature. When liquid nitrogen is evaporated *in vacuo* a temperature of about 210deg. Centigrade below the melting point of ice can be just reached, but the practical working limit in such experiments is about *minus* 200deg. Centigrade. This temperature is still 74deg. from the zero, and the question now is, can we diminish the distance? The zero may be defined as that point of temperature at which gas particles would give no pressure and have no volume. The temperature at which this would take place is 274deg. below the freezing point of water, and this result is confirmed by thermo-dynamical considerations where temperature is defined apart from the properties of any particular kind of matter. The only avenue of approach that is left seems to be the liquefaction of hydrogen, which is the sole remaining gas that has not been liquefied. It is true all the text-books state the reverse, on the ground that it has been proved that compressed hydrogen when expanded can yield a mist. Such statements have added nothing to the advance of knowledge in this department. On the contrary, they have done harm by making the ignorant believe that the most permanently gaseous element had been vanquished. The attainment of any such result is, indeed, a problem surrounded by almost insurmountable difficulties.

The possibility of making a gas pass into the liquid state depends upon our being able to get below the point of temperature known as the critical point. Unless this point is reached no amount of pressure can force the gas into the liquid condition. Now, hydrogen has a critical point of about *minus* 240deg., and the question is, How can we attain such a temperature, seeing that liquid air or nitrogen only enables a temperature of *minus* 200deg. to be reached? How can these 40deg. or 50deg., as the case may be, be bridged over? This can only be done by constructing a new substance, having a critical point of *minus* 200deg., or some 50deg. lower than nitrogen, which is the most volatile known liquid. Such a body can be made by liquefying a gas composed of hydrogen mixed with 10 per cent. of nitrogen. This is the direction in which Professor Dewar has been lately pressing forward his investigations, and the new results give hope of further advance. The really serious question is the extremely small proportion of the liquefied material that can be collected in open vessels. In order to understand this it is necessary to keep in mind that, when a substance is near its critical point, it has a very small latent heat of evaporation, but a very high specific heat. It follows, therefore, that, in order to get the liquid cooled by its own evaporation from near its critical temperature to its boiling point, a very large proportion of the liquid produced under high compression in the refrigerating apparatus has to be sacrificed.

Thus, for instance, one pint of liquid air collected in one of the well-known open vacuum vessels necessitates the liquefaction of some three pints of liquid in the apparatus. In other words, two-thirds of the original amount of liquid produced has to evaporate in order to procure the remaining third at its own boiling point. The proportion of the resulting liquid in each case depends, as above stated, on the latent heat of evaporation and the specific heat of the particular liquid—if we neglect for the present the serious question of cooling the vessels—and the loss of heat by radiation and conduction. All our present experience confirms the view that the latent heat of evaporation is proportional to the absolute critical temperatures or, what is about the same, to the absolute boiling points. As the absolute critical point of hydrogen is about 40deg., while that of nitrogen is 128deg., it is clear that the latent heat of liquid hydrogen would only be one-third that of liquid nitrogen or air. Further, analogy leads us to the conclusion that the specific heat of liquid hydrogen is very much greater than that of liquid nitrogen or air. The combined result must therefore be that, if practically only 30 per cent., as above described, of liquid nitrogen or air can be collected, a very much smaller amount of hydrogen, say from 1 to 5 per cent., is all we can anticipate as the yield by similar methods of manipulation. Assuming that we had such a liquid, its use as a cooling agent would, indeed, be very expensive, since its cost may be taken as at least 20 times the cost of liquid air. One thing, however, can be proved by the use of the gaseous mixture of hydrogen and nitrogen—viz., that by subjecting it to high compression at a temperature of *minus* 200 deg. and expanding the resulting liquid into air a much lower temperature than anything that has been recorded up to the present time can be reached. This is proved by the fact that such a mixed gas gives under these conditions a paste or jelly of solid nitrogen, evidently giving off hydrogen, because the gas coming off burns fiercely. Even when hydrogen containing only some 2 to 5 per cent. of air is similarly treated, the result is a white solid material (solid air) along with a clear liquid of low density which is so exceedingly volatile that no known device for collecting it has been successful. To attain such a result it is necessary to liquefy and expand more than one pound weight (or

about seven cubic yards) of hydrogen gas. Knowing the difficulties from having to deal in the liquid state with the accumulated small impurities in such large amounts of gas, Professor Dewar will not declare that he has had pure liquid hydrogen in one of his vacuum vessels, although what this liquid can be except hydrogen it is impossible to say. The future progress of these costly and difficult experiments must depend very much upon questions of outlay, and it is to be hoped that the public will not assume that the endowment so handsomely given to the Royal Institution by Mr. Ludwig Mond for the maintenance of a public laboratory of research, to be called the Davy-Faraday Laboratory, can be used for the prosecution of such investigations.—*Times*.

THE NATURAL SODA DEPOSITS OF CHINA.

IN addition to the natural deposits of soda which occur in many districts, notably Nevada and California, certain grounds in Northern China are rendered useless for agricultural purposes on account of their alkalinity. During the dry time of the year, the surface of the land in many parts of the North of China is covered with a white incrustation of salts, called *chien* by the natives, which easily dissolves in water, and therefore disappears during the rainy season. A sample collected in the neighbourhood of Pekin, a few *li* to the S.W. of the city, contained:—

Chloride of sodium (common salt)	23 8%
Carbonate of sodium (soda)	12 4%
Sulphate of sodium (Glauber's salts)	63 8%
	100 0%

Large quantities of these salts may be obtained by having the ground swept with a broom and lixiviating the sweepings with warm water. Over a third of the material thus collected is soluble matter. It may be separated from the solid residue either by filtering or by syphoning the supernatant liquor and evaporating the saline solution, which shows a strong alkaline reaction on account of the carbonate of sodium contained in it. When sufficiently concentrated, the liquid, on cooling, deposits a large mass of crystalline matter, which for the most consists of sodium sulphate, a part of it, together with the sodium carbonate and chloride remaining in the mother liquor. The latter, on being evaporated to dryness, yields a brownish-looking substance—the colour being due to organic matter,—which, on being treated with vinegar or other acid, shows a brisk effervescence. It is to all intents and purposes the same substance as that called *Tzu-chien* by the Chinese, which is an impure carbonate of soda extensively used in dye works. Not only does it serve for the cleansing of textile fabrics, but, owing to its large amount of sodium sulphate, is also used as a mordant, for instance, in colouring cotton cloth with a solution of indigo, &c.

Judging from the above, there appears to be an abundance of sodium sulphate in some parts of China which may become valuable some time or other when, with the introduction of foreign industries, such as the manufacture of glass and soap, a greater demand is created for this chemical substance than exists at present. As there is plenty of limestone and coal in many places, all the materials wanted are possessed in abundance. This, in addition to the cheapness of labour, makes it not improbable that at some time or other China will become one of the chief producing countries of soda.

At present this substance is extensively used by the Chinese for cleaning purposes, taking the place of soap in foreign countries. It also serves as a baking powder in the preparation of Chinese bread.—*North China Herald*.

DETECTING HEATED JOURNALS.—One of the little-known compounds of iodine is the iodo-mercurate of copper, HgCu_2I_4 . It is prepared by adding solution of cupric sulphate to a boiling solution of Meyer's reagent; part of the iodine is liberated, and a black precipitate thrown down, which becomes bright scarlet on cooling. At temperatures of about 150 deg. Fah. this becomes black, and regains its colour on cooling. If painted on a bearing, it at once shows any heating long before it can do mischief. In engines, where there are many bearings, and some difficult of access, this should be useful.

WHICH IS THE CORRECT WAY TO VENTILATE.—There is so much room for improvement in our knowledge of ventilation that the recommendations of the Board of Investigation appointed to suggest the most suitable method of ventilating the Capitol of Washington are worthy of some attention. The Board points out the danger of ventilation by impulsion, condemns downward ventilation, and recommends what is termed "upward extraction." The difficulty is not so much to get fresh air in as to get the vitiated air out. A very able article on this subject appeared a few months since in the "Engineering Magazine," reference to which was made in this journal—No. 366, p. 333.

DISTILLATION.

By R. TERVET, JUNR.

(Concluded from p. 146).

THUS far, we have partially considered the operation of distillation, and now come to that of condensation. If we refer to the text-books for information and guidance on the theory of condensation, we are left very much, so far as I can ascertain, to our own devices.

The Coffey still, with its fractional condenser, may be taken as a type of what has been done on the large scale for treatment of alcoholic and ammoniacal liquors. The Le Bel and Henniger's apparatus may be regarded as representing what has been done for laboratory work. We are all aware that many devices have been brought forward, and find that, in nearly every case, the inventor has gone upon correct lines for his special department; and it appears to me that the Coffey apparatus has left little room for improvement in the many operations to which his condenser has been applied. The same may be said of Le Bel and Henniger's apparatus. Fortunately no serious modification of the ordinary coil condenser is required for the condensation of petroleum oils, although there are certain products which require to be treated to establish the "flash point," etc., as, for instance, the complete elimination of all light oils for lubricating oils.

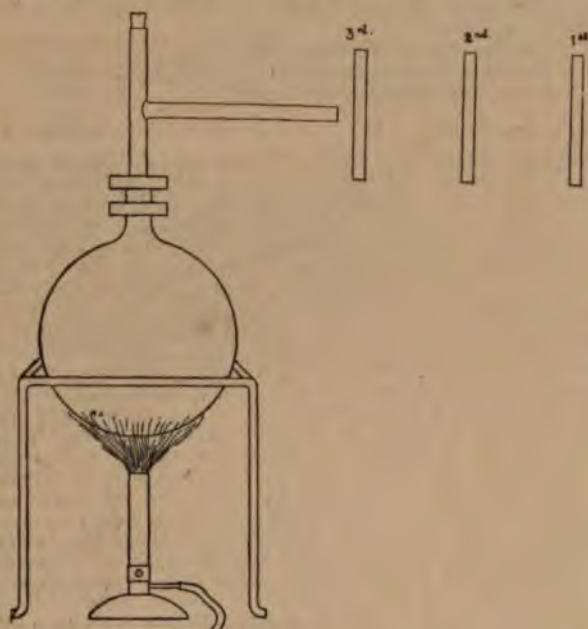


Fig 3.

In considering the phenomena of condensation, as applied to distilling, we have to note that it is the passage of a vapour to the liquid state, and is an exothermic process. Condensation may be effected by affinity, impact, compression, and cooling in regard to the first and second the most rarified mixed vapours may be deprived of their more condensable constituents without their being in a condition of saturation, and to a certain extent without excessive cooling. On the other hand, if cooling and compression be adopted, it is necessary that the vapour be saturated or in contact with its own or similar liquid. Non-saturated vapours, therefore, possess the same physical properties as a permanent gas.

The experiment previously referred to in some measure illustrates the condition in which a condensable vapour plays the part of a permanent gas. The addition of the heavy oil shows how readily the light hydrocarbon may be separated from the admixed air. This is entirely due to the affinity which the heavy oil has for the light, and may be further illustrated in the following way:—It is safe to regard coal-gas as a distillate, and, if required to be fractionated, the ordinary method of condensation by cooling would not be available, and it is obvious that some other means would have to be adopted. Coal-gas is a mixture of the more permanent gases with vapour and liquid hydrocarbons, the latter more or less condensable. Coal-gas, under ordinary circumstances, does not condense. The vapour and liquid constituents are held in suspension by the tension of the permanent gases, and their own diffusibility. By passing coal-gas through some of the heavy oil previously used, contained in two Woulff's bottles, it will be observed

that the illuminating power of the gas is greatly impaired owing to the absorption of the illuminating constituents by the oil.

The molecular movement of the condensable vapours is arrested by the affinity which the heavy oil exerts upon them whereby they are speedily reduced to the liquid state, thus overcoming the tension of the gaseous constituents.

This establishes the fact that condensation of a substance under these conditions may take place at, and even beyond, its boiling point.

It may be noted in passing that the conditions here described have been ingeniously taken advantage of by Mr. G. E. Davis in his "Note on the Extraction of Benzene from Coal Gas" (*J.S.C.I.*, Vol. III., page 433), and also by Mr. Young for the recovery of shale naphtha from the gases obtained in the paraffin oil industry.

The converse of this experiment is what we wish to have in the process of fractionating liquids miscible in each other. The Le Bel fractionator effects this to a very considerable extent, inasmuch as it permits the heavy portion to condense from the state of saturated

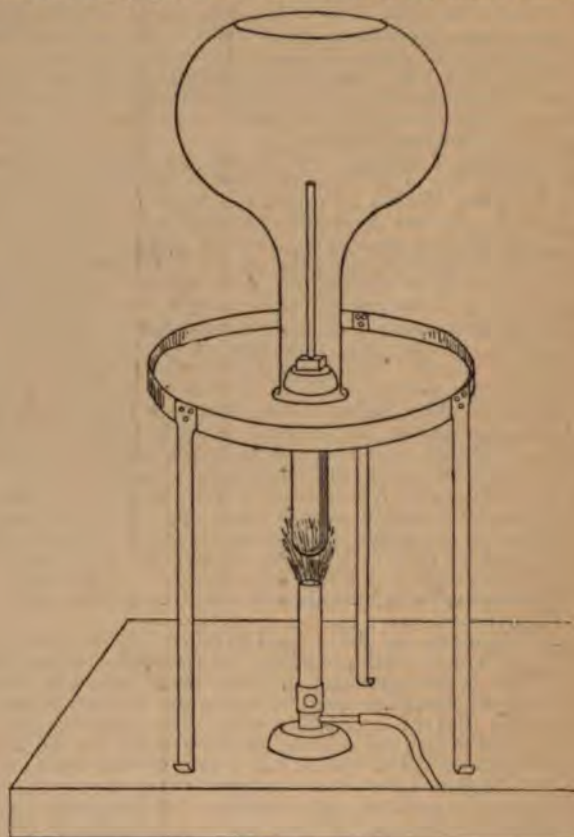


Fig 5

vapour and run back without exerting much of its solvent power upon the lighter constituent which is in or approaching the gaseous state.

The preceding observations have shown that the vapours of volatile liquids can be made to assume the liquid form at and even above their boiling points.

Again reference has been made to "impact." This method of condensation shows that the operation is a very delicate one, owing to the vapours possessing a very small amount of latent heat. If this latent heat can be suddenly abstracted, vapours will without difficulty be brought to the liquid state.

The phenomena to be observed in this method of condensation can be better studied by actual experiment than mere description. I shall draw attention to what may be noticed in the case of water, naphthaline, sulphur, ammonium chloride and oil.

The copper still shown in Fig 3 contains a small quantity of boiling water, the exit for the steam is a narrowed aperture. If I hold a glass plate at some distance across the path of the steam condensation will take place in the usual way (by cooling). If the plate be brought nearer to the orifice, the steam will condense in greater quantity and with greater rapidity owing to its latent heat being absorbed in doing work. If the plate be brought still nearer to the aperture condensation will take place with still greater rapidity. This latter may be thought to be due also to the

absorption of the latent heat; but to show that such is very unlikely let the steam be made to impinge upon a flask or other surface heated to 100°C . condensation still occurs, but under such an extreme condition as that stated, condensation is not very great, owing to evaporation taking place simultaneously. Of course, in this method of distilling and condensing there must be a slight pressure in the distilling flask in order to overcome the slight resistance which the aperture presents, and give decided movement to the vapour. We must not, however, omit to notice that condensation takes place under atmospheric pressure. It is worthy of remark that wire gauze instead of flat surfaces does not effect any considerable amount of condensation, as may be proved by holding the glass plate behind the gauze.

This experiment with steam is very difficult to perform owing to the sudden bursts of intrained water interrupting the condensation.

If, however, a few fragments of naphthalene be added to the boiling water and the experiment repeated, the above results will be made apparent. Oils and other volatile substances may be examined in like manner.

Some little time ago I had an atmosphere in a confined place at a pressure of $1\frac{1}{2}$ " of water, the temperature was $30\text{--}35^{\circ}\text{C}$., and the enclosed atmosphere was known to be saturated with moisture, and in contact with which sulphur was under treatment.

My attention was drawn to a small escape in the confining vessel, and it occurred to me to ascertain whether this moisture would deposit on a smooth surface. To my great surprise sulphur was deposited, and only with an enlarged aperture did moisture make its appearance on the glass plates. Strange to say, several of the deposits obtained how indication of superfusion with the formation of prismatic sulphur, especially in those where the impinging was allowed to continue on one spot for some time.

There would be considerable difficulty in repeating the experiment with sulphur, but on looking around it occurred to me that the same phenomena should be obtained by causing a current of moist air to pass first over ammonia and then hydrochloric acid. The necessary apparatus is simply two Woulff's bottles set in series. The connecting tubes need not dip into the liquids. By projecting the stream upon a glass plate ammonium chloride is instantly deposited. By inspecting and comparing the plates containing the sulphur with those of ammonium chloride, it will be noticed that they are in nearly all respects identical.

I am not overlooking the fact that both sulphur and ammonium chloride are solids; but if we consider for a moment that the cloud of ammonium chloride which stands over the hydrochloric acid does not show any signs of condensing or settling, we cannot fail to note the rapidity and ease with which condensation is accomplished by impact.

There is just one other experiment which shows how we may fairly draw the conclusion that solids in a fine state of subdivision behave under such circumstances, precisely the same as mixed vapours.

In fig 5 we have a small retort containing a few fragments of shale surmounted by an inverted flask. The valuable products eliminated from shale graduate from permanent gas to solid paraffin. The flask holds in suspension more or less of all these products, and although the flask is cold enough to effect the condensation of the more condensable, time would elapse before condensation would be complete. If these mixed vapours be projected on a flat surface, as in the other cases, the condensation takes place with equal rapidity.

It may be here noted that the white cloud obtained from the shale consists of the solid and semi-solid products in the distillate, and are the least volatile, yet they resist to a great extent the ordinary method of condensation, while we experience no difficulty with the liquid portion.

In order, therefore, to thoroughly understand the phenomena of condensation, we have first to consider the physical condition of the vapour being distilled. The more heterogeneous these vapours are, the more

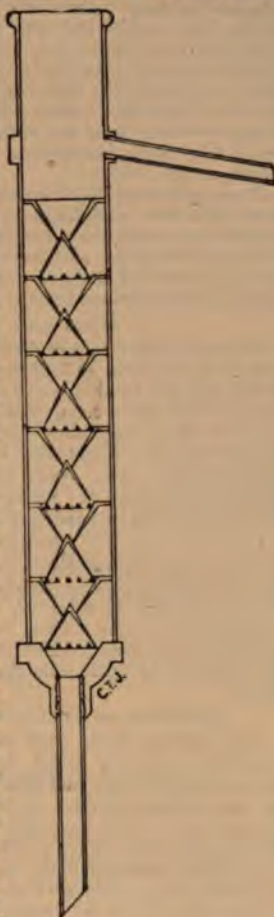


Fig 6

suddenly the lowering of temperature should take place. A convenient mechanical arrangement should exist to first of all cause the vesicles of the heavier constituent to coalesce and rapidly disappear from the sphere of condensation, so preventing them exercising any solvent action on the more volatile constituents by lowering the vapour tension; and second, condensation should be made to take place at a temperature as near the boiling point of the desired fraction as possible.

We have still the methods of compression and cooling left to consider. The former is seldom required in practice, except, perhaps, in dealing with substances which are employed for the purpose of refrigerating; while, further, it cannot be adequately dealt with here, as it requires a mathematical treatment. The cooling method is well known and understood.

The influence under moderate conditions of pressure and vacuum on distillation and condensation is shown to some extent in the following table, with a mixture of equal parts of benzene and turpentine:—

Pressure.	Boiling Point.	Tension of Benzene.	Tension of Turpentine.	Ratio in Distillate: Benzene: Turpentine
	50°	271	27	100 : 1
680 m. m.	111°	1726	256	7.6 : 1
760 m. m.	115°	1975	303	6.5 : 1
800 m. m.	117°	2019	321	6.4 : 1
	150°	4330	775	5.5 : 1

To revert to the fractionation principle, by the aid of the illustration, Fig. 6, I am able to show the design of a small fractionator, which I am at present working out. In many respects, it is like the Le Bel Fractionator, and is expected to yield results, if not better, at least quicker than the latter. Besides, it is designed so that the idea may be capable of application on the large scale.

It consists simply of an upright parallel cylinder divided into six compartments, each compartment consisting of two hollow cones.

Beginning at the base of the apparatus which forms the first cone, the flanges of the 1st and 3rd cones form a compartment. The 1st, 3rd, and 5th, etc., cones are inverted. There is placed between the 1st and 3rd cone another cone, the base of which dips into the cup of the inverted base cone below, while its apex penetrates the apex of the next inverted cone. Round the base of this middle cone a series of small grooves are cut, which gradually diminish in size as they ascend; the apex of the inverted cone is similarly grooved internally.

It is not expected that, with a suitable adjustment in the size and number of the grooves, any inconvenient accumulation of the return liquid will take place. Neither is it intended that they should be of such a size as would allow all the liquid to flow back freely; but rather that the liquid as allocated in the several compartments should be subjected to a more perfect washing than in the Le Bel bulbs.

No special passage is provided in this apparatus for the return liquid, but I depend upon, and have already satisfied myself in regard to the ease with which a fluid passes over a smooth surface being ample in this case. As the junctures between the several cones are knife edges, they form no break in the continuation of the smooth surface which leads the liquid back to the distilling flask.

Take, for example, a mixture of benzol and cymol, the boiling points of which are remote. The aim is that, after the benzol has been eliminated, and when the temperature begins to rise, the several compartments should show temperatures corresponding to the composition of the mixed vapours, thus:—

Compartment.	Temperature.	% of C_6H_6 .	% of $\text{C}_{10}\text{H}_{14}$.
1 (top) ...	81	99	1
2	95.5	82.75	17.25
3	110	66.66	33.33
4	124.25	51	49
5	138.5	35	65
6	153	20	80
lask.	167.5	2.75	97.25

I much regret that the apparatus is not finished, but expect to have it so at an early date. I should be very glad if someone would undertake a series of experiments with it, and give the Society the benefit of his results, coupled perhaps with a theory of condensation.

SMOKING SMOKE CONSUMERS.—Last week, at the Salford Police Court, Thomas Holt and Matthew Connolly, firemen at the bleach-works of Mr. Henry Heywood, Adelphi-street, Salford, were summoned for negligently using furnaces at the works, constructed to consume their own smoke, and thus causing a smoke nuisance. Mr. A. Holmes, deputy town clerk prosecuted, and evidence was given by Inspector Thompstone to the effect that on the 31st July he took observations of the chimney of Mr. Heywood's works, and in the course of one hour dense smoke was issued for an aggregate of seven minutes. Defendants having previously been fined for a similar offence, Holt was now fined 30s. and costs, and Connolly 15s. and costs.

INDUSTRIAL USES OF CELLULOSE THIO-CARBONATES.

A CONSIDERABLE amount of time has lately been devoted by Mr. A. Little to working out the practical applications to which the thiocarbonates and their derivatives discovered by Messrs. Cross, Bevan, and Beadle are capable of being put. In a paper descriptive of his work, read before the chemical section of the Franklin Institute, Mr. Little says that although in the early stages of the work numerous practical difficulties were encountered, still now development is going forward very rapidly. The most promising applications are, as a substitute for glue and ebonite, and also thin films for artificial leather, floor tiles, &c.

Up to now the following are the six commercial forms which may be used for industrial purposes:—(1) The crude solution. (2) Dense cellulose in the mass. (3) Films and sheets. (4) Films and sheets on cloth backing. (5) Porous cellulose. (6) Various admixtures of cellulose and foreign substances, as untreated fibre or mineral matter.

In the production of almost all the samples the raw material used has been cellulose in the form known to paper makers as sofa fibre made from poplar wood; but as already pointed out by Mr. Beadle, any other cheap or convenient form of cellulose is equally available.

Taking up now in the order indicated above the different industrial applications to which these new products have already lent themselves, we have to consider

THE APPLICATIONS OF THE CRUDE SOLUTION.

(a) *Substitute for Glue.*—The viscosity and tenacity of the solution in water of the cellulose thiocarbonates, and the fact that the compounds upon drying and standing suffer spontaneous decomposition with the recovery of the cellulose as an insoluble film, early suggested the use of the solution as a substitute for glue. A solution containing 5 per cent. of cellulose is much more viscous than a hot solution containing fifty per cent. of glue, and a ten per cent. solution is, under ordinary conditions, as heavy as can be worked to any advantage.

A one per cent. solution decolorised with sulphurous acid has been used in the commercial way for billposting, bookbinding, and the manufacture of three-and-four-ply straw boards. No attempt has been made to wash out the salts, and in view of this fact it is noteworthy that there is an entire absence of odour in the finished product. The solution has been used in place of glue in binding a large number of books of all grades, from the cheapest to the most expensive. It has been found upon inspection that all these books open perfectly flat at any page without straining or cracking the binding. No extended experiments have as yet been made with a view to the use of this glue substitute in carpentry, but two pieces of maple, cemented with a ten per cent. solution on a joint of one inch area, have required a strain of over 500 pounds to separate them. This compares favourably with the best glue, while in cost there is a large balance in favour of the cellulose solution. The latter has the further advantage of being comparatively little affected by a very moist atmosphere.

(b) *Cloth Sizing.*—A large field of use for the decolorized solution is found in the treatment of cotton and linen cloth for the purpose of securing a permanent stiffening or sizing, which is of special value in case of such goods as would ordinarily be starched. The cloth is passed through the decolorized solution, the excess squeezed out by rollers, the cloth then dried and afterwards washed and bleached in the usual manner. By this treatment the threads and fibres are more or less bound and held together by an exceedingly thin film of cellulose and any degree of sizing or stiffening may be obtained. Starch, clay and other fillers may be mixed with the solution and are then carried into the body of the fabric and made a part of it. Cloth thus sized or loaded becomes soft and flexible in water so that it may be washed without difficulty, but again becomes stiff when ironed. It is expected that such cloth will find a use in the manufacture of collars and cuffs, table-cloths, shirt-fronts, muslins, etc.

(c) *Vehicle for Pigment Printing.*—An extension of the above application is found in our new method of pigment printing, which consists in mixing the pigment with the decolorized cellulose solution, then printing upon cloth in the usual manner, then drying and finally washing. The drying decomposes the cellulose compound and causes the modified cellulose to adhere to the fibres, while at the same time carrying with it and fixing upon them the pigments with which it has been mixed. The pigments are thus firmly held within the substance of the cloth.

(d) *Paper Sizing.*—The addition of alum to the very dilute solution of the cellulose thiocarbonate determines the precipitation of the cellulose in the amorphous flocculent condition. It thus becomes possible to precipitate the cellulose among the fibres in a paper engine after the ordinary manner of engine sizing and the precipitated cellulose not only sizes the paper but brings together and assists in the retention of the fine particles of clay or other filler which would otherwise be in large part lost.

DENSE CELLULOSE IN THE MASS.

This may be formed by allowing the solution to revert or decompose spontaneously with separation of the cellulose as a jelly. The by-products of the decomposition are removed by washing and the cellulose then dries down to a dense mass of specific gravity 1.53. It has much the appearance of ebonite, takes a high polish and may be easily grained or coloured in the mass. It is quite homogeneous and may be worked in any direction. It has a field for use as insulating material and in the manufacture of buttons, tool handles, small articles and turned goods generally.

FILMS AND SHEETS.

These may be made either in the continuous way, as pointed out by Mr. Beadle, (*C. T. J.*, 280, p. 128) or by pouring the solution upon a glass plate with deckel edges to control the thickness of the film or sheet, and then drying the solution down and decomposing the compound, preferably by dry heat or steam and afterward washing out the soluble inorganic by-products. In this condition the sheets take colours very readily, and with proper care in the treatment may be made nearly as clear as glass. Among the uses to which the thinnest of these films have been already put may be named the glazing of binders' board, the production of photographic films, facing blotting paper and the like. Specially lustrous and durable glazed papers are prepared by rolling on to the paper one of these films. If the paper is of the proper tint, a very close imitation of vellum is produced for use in book-binding.

The applications of the heavier sheets ranging from $\frac{1}{1000}$ to $\frac{1}{100}$ or more of an inch in thickness are especially numerous. They may be stamped into small wares like plates, trays, boxes, brush-backs, shoe-counters, inner soles, embossed signs, etc., or the sheets may be printed upon and stamped in almost any manner desired. Attractive covers for small books and pamphlets have been made.

FILMS AND SHEETS ON CLOTH.

These are either formed directly upon the cloth or by rolling the wet film on to the cloth. Cloth faced in either way with the thinnest films is well adapted for curtain-cloth, bookbinding, and many other special uses. Cloth with a facing from $\frac{1}{1000}$ to $\frac{1}{100}$ inch in thickness is valuable for many large uses. It may be caused to resemble morocco leather very closely, and takes all the fine impression of the grain under a proper roll or dye. It is especially well adapted to upholstery work, embossed hangings, and interior decorations. The thicker sheets have proved themselves a handsome and durable floor covering.

POROUS CELLULOSE.

By working the solution in such manner that the recovered cellulose has an open or porous structure, a new product of much beauty is obtained, which is especially adapted for fancy printing, embossed hangings, book-covers, fancy boxes, signs, and small articles. It has been proposed to utilise this form of cellulose as a substitute for sponges, and there is no doubt that the structure of the sponge can be reproduced.

MIXTURES OF CELLULOSE AND FOREIGN SUBSTANCES.

The solution lends itself very readily to admixture with such materials as ground wood, various fibres, clay and other mineral matter, and in each case the resulting mixture of recovered cellulose and the foreign ingredient possesses some novel and useful property. In this way we have prepared floor coverings which are either flexible like oil cloth or linoleum, or hard and rigid like tiles. Various forms of insulating material have been made, together with trunk boards, embossed panels, emery wheels, and many other special articles.

The above list by no means completes the number of applications which we either have in mind or in the partially-developed state, but will suffice to indicate some of the points at which these new compounds may fairly be expected to touch the arts and to justify to some extent the high estimate which I placed upon the importance of these discoveries to the industrial world. Their value and interest from the scientific standpoint have already been widely recognised.

THE SALT MINES OF KHEWRA.

THE salt hills of the Punjab are not usually found marked on the atlases used in schools, but the range is understood to extend from the town of Thelum eastward to Kalabagh on the Indus. There is a salt range extending beyond Kalabagh, across the Indus, but the salt is of a different age and position. The Cis-Indus range lies between 73° 30' and 71° 30' East Longitude, and between 32° 23' and 33° North Latitude,—historic ground, famous alike in ancient and in modern time.

Khewra is the name of the village where the most important of the mines are worked. These are called the Mayo Salt Mines in honour of Lord Mayo who visited them when Viceroy of India. The only inhabitants of Khewra are those whom the work connected with the mines renders necessary, but a railway makes communication with

Theilum and Lahore easy. The depôt where the salt is collected and despatched is called the Warthganj depôt, after Dr. Warth, who was once the Collector of the Salt Rang district, and to whom the development of the mining industry is greatly indebted. In 1889, there were two European officers working in this depôt; there may be more now. Another officer was in charge of the mines, and above these was the Assistant Commissioner, with judicial power.

The Mayo Salt Mines are not mines in the sense of being far beneath the surface of the ground, like a coal mine, for instance. In describing a visit to the mines a writer in the "Agricultural Magazine" says—At the base of a high ragged hill there are two or three openings like the mouths of tunnels, and through these tunnels we walk or are trolled along, accompanied and guided by miners with torches and little earthen saucer-lamps called *dhivas* to light up the encircling darkness. When the first sensations of novelty and bewilderment are diminished, we look above and around us, and see nothing but salt,—salt floor, salt walls, salt roof, all blackened and begrimed with the soot from torches and *dhivas*. Sometimes we come upon large recesses (called *stations*) where salt ready for removal is collected; sometimes we meet trucks passing by us carrying salt to the depôt, or returning empty for another load; and sometimes a dark patch on the wall marks a passage leading upward, downward, or in some horizontal direction to the different "chambers" where the miners work.

The salt, it may be noted, is rock-salt, and is obtained first by blasting, and then by cutting with a rough pick. The miners are so accustomed to the work that the little *dhivas* are all the light they require, and it is astonishing with what regularity and neatness the walls of the chambers are cut. These chambers are immense rooms—one of them being 320ft. long and 150ft. high. They are seen at their best when a small paper balloon is sent up and the surrounding space is thus lighted up. There are several "Show Rooms" of this kind into which visitors are taken.

The salt obtained is generally of a pink or pinkish colour, sometimes a dirty or muddy pink. Natural salt is said to be found in almost every colour—red, brown, green blue, &c., but here the prevailing colour is pink. The transparent crystal salt is also found. A solid rectangular block of 37½ cubic feet, and weighing 2½ tons was sent to Vienna Exhibition of 1873. The quantity of rock-salt in this range is practically inexhaustible. It has been calculated that "if an average thickness of only 135ft. and a width of 3 miles be assigned to the salt beds, then, in the 130 miles along which these are seen there may be 130 miles X 3 miles X 135ft. of beds, giving as the solid content of the salt deposits nearly 10 cubic miles." As for the quality, Dr. Warth declared that the salt is "of a purity such as few known salt mines of the earth can yield. There is no such salt in England, nor in most mines on the Continent."

In concluding these notes, it may be stated that the actual cost of production is said to be under 2 as. or 12 cts. a maund (=82lbs.). But the Government duty on each maund is Rs. 2.8, so that to obtain a maund of salt at the mines the buyer has to pay Rs. 2.62.

AN ANALYSIS OF MONTANA BITUMEN.

IN view of the increasing use of bitumen, Messrs. Day and Bryant have been investigating the bitumen deposits at Park County, Montana, U.S.A. The sample on which they operated was obtained by Mr. C. J. Lakin, and consisted of about a litre of a brownish black material, liquid enough to flow very slowly at the ordinary temperature, and possessing a pronounced and unpleasant odour.

Estimation of Water.—By heating for two hours in a U tube immersed in boiling water, a current of dry air being passed simultaneously, and the moisture absorbed in a CaCl₂ tube, 6.76 per cent. of water was found.

Estimation of Carbon and Hydrogen.—No. 1.—0.6462 grams gave 1.8672 grams of carbon-dioxide, and 0.5365 grams of water.

No. 2.—0.4097 grams of substance gave 1.2144 grams of carbon-dioxide and .3449 grams of water.

Carbon found, No. 1, 78.80, No. 2, 80.81.

Hydrogen found, No. 1, 9.22; No. 2, 9.35.

Determination of Mineral Matter.—No. 1, 0.8426 grams of substance gave on combustion 0.0058 grams of residue.

No. 2, 0.3324 grams of substance gave on combustion 0.0023 grams of residue.

Percentage of ash, No. 1, 0.69 per cent.

Percentage of ash, No. 2, 0.69 per cent.

Determination of Sulphur.—0.7144 grams of substance gave (using Liebig's method) 0.1471 grams of barium sulphate.

Percentage of sulphur found, 2.83.

A determination of nitrogen gave only a trace.

The following analysis of commercial interest was also made:

Material Soluble in Carbon Disulphide.—5.5300 grams of dry substance gave 5.2540 grams of material (bitumen) soluble in carbon disulphide.

Percentage of bitumen found, 95.00.

The weight of the material insoluble in carbon bisulphide was 0.2760.

Percentage of foreign organic matter, 4.99.

The material soluble in carbon disulphide was treated with gasoline, and the percentage of matter soluble in gasoline (petroleum) was thus determined.

5.5300 grams of the original substance gave 4.4240 grams of material soluble in gasoline.

Percentage of petrolene found, 80.00.

The foreign organic matter found consists largely of fragments of birds' feathers, leaves and insects, which had probably accidentally been caught and submerged in the pitch.

The following distillation experiments were made:

Seventy four grams of the substance were introduced into a distilling flask by aid of a filter pump; the viscosity of the material was such that it took several hours to transfer about 100 cubic centimeters to the flask.

A Bunsen flame was applied directly to the flask; the material frothed considerably, giving a gas which was collected and measured. The gas given off at this stage amounted to 2,250 cubic centimeters. When a thermometer placed with the bulb in the vapour (*i.e.*, a little below the side tube of the distilling flask) showed 98° C. the frothing ceased and a liquid distilled over between 98° and 110°; the weight of this fraction was 6.75 grams. The second fraction was taken between the limits 110° and 170°, its weight was 2.3 grams; the third fraction was taken between 170° and 225°, its weight was 8.75 grams; the last fraction was from 225° to the limit of the thermometer, it weighed 22.5 grams. The last fraction was accompanied by the more rapid evolution of gas which had decreased at 98°. Between 98° and 225°, 1,000 cubic centimeters of gas were produced.

The amount of gas evolved at this final stage was 2,500 cubic centimeters, thus making in all 5,750 cubic centimeters of what, on burning, proved to be a good illuminating gas.

A number of tests for aromatic hydrocarbons and derivatives yielded negative results.

The following summary of the analytical results obtained shows how the material in question compares in chemical constitution with Trinidad asphalt, which has heretofore supplied a large percentage of the demand in the United States:—

	Trinidad.	Park Co., Montana.
Water	—	6.76
Carbon	85.89	79.81
Hydrogen	11.06	9.29
Oxygen	.56	.62*
Nitrogen	—	trace.
Sulphur	2.49	2.83
Ash	—	0.69
	100.00	100.00

* By difference.

These figures are only approximately comparable, since those for the Trinidad material are calculated on the pure and dry asphalt, exclusive of earthy and foreign organic matter.

OBITUARY.—It is with much regret we announce the death of PROF. VON HELMHOLTZ, one of the ablest physicists of the age. Seeing that he seemed to have partially recovered from his recent stroke of paralysis, his death is all the more lamentable. PROF. J. P. COOKE is another excellent chemist and mineralogist who has crossed the "bourne" during the past week. His work on "The New Chemistry" has been translated into almost every European language.

DEATH UNDER CHLOROFORM.—An inquest was held recently at the London Hospital on the body of Rachel Goldberg, the daughter of a boot maker. The mother stated that the deceased had been ill for about a year, first with rheumatic fever, and lately with dropsy and palpitation of the heart. Witness brought her to the hospital to undergo an operation. Dr. Down, house surgeon, deposed that the deceased was admitted in a precarious condition. The mother's consent was obtained for the operation, but she refused to allow it to be performed unless chloroform was administered. Deceased was suffering from gangrene of the bowels, and the operation was to remove the gangrene. When admitted it was understood that the deceased was also suffering from heart disease. A dose consisting of chloroform, ether and alcohol was administered. It at first seemed satisfactory, but eventually it was found necessary to use artificial respiration to restore her. These efforts failed, and the girl died in a very few minutes. The Jury returned a verdict of "Death from misadventure."

Trade Notes.

AN INSULATING ENAMEL.—An insulating enamel for coating sheet-iron insulators is made by mixing together silica, borate of soda, clay, arseniate of soda, phosphate of lime, and nitrate of soda. The proportion of each ingredient used is the subject of a patent.

THE GLASGOW SEWAGE WORKS.—The Sewage Committee of the Glasgow Corporation have decided on purification works at Dalmuir. The drainage area to be dealt with covers 4,000 acres, and the refuse will be carried in a gravitation sewer to the Corporation lands without pumping.

ANOTHER PARAFFIN LAMP FATALITY.—A sailor, named George Quinton, of the Middlesbrough steamer *Greenwood*, died at Southampton last week from burns sustained whilst asleep in the cabin through a paraffin oil-lamp exploding while the steamer was in collision with an unknown barque.

FORMIC ALDEHYDE AS A DISINFECTANT.—A solution of formic aldehyde in water has been patented as a disinfectant. It is prepared by passing air charged with methyl alcohol over copper gauze, which is heated and has an oxidized surface. The resulting gases are passed through a series of receivers charged with water.

ACCIDENT AT AN IRONWORKS.—Last week, at the Bolton Iron and Steel Works, a large steam crane came in violent contact with a pillar support. The pillar was dislodged, and a considerable portion of the roof fell in, doing serious damage. Two men were injured, and several others had a miraculous escape. The incident caused great excitement at the works.

THE THIRLMERE WATERWORKS.—At the meeting of the Manchester City Council, last week, Sir John Harwood stated that the Waterworks Committee had decided to open the Thirlmere Waterworks in October next. The scheme they were confident would not cost more than the £2,500,000. they estimated. It was suggested that the opening ceremony be performed by Sir John Harwood, another suggestion being made that the Prince of Wales be asked to do so.

THE PLATINUM TRICK AGAIN.—A stylishly dressed Hungarian, named Edward Norway, has been sentenced to six months' imprisonment for swindling Sir William Arrol, the well-known Forth Bridge engineer. Norway represented that he had a very valuable patent, and Sir William took him into his employment, fitted up premises at great expense, and paid £200. for platinum. It was only when the platinum disappeared that the fraud was detected.

MANCHESTER MUNICIPAL TECHNICAL SCHOOL.—A series of 30 lectures on (1) Oils, Colours, and Varnishes, (2) Illuminating and Lubricating Oils and Fats, and (3) Soaps, will be delivered by Mr. G. H. Hurst, F.C.S., as a course of evening lectures at this school. The session begins on Wednesday, 19th inst. There will also be a practical course of instruction in the three subjects. The fee for each lecture course is 5s., and for the practical course 25s.

AN IMPORTANT COAL DISCOVERY.—Explorations at South Carr, Haley, Lincolnshire, have resulted in the discovery of workable seams of coal, but the want of cohesion among the local land-owners makes it very improbable that the coal will be worked in the immediate future. The boring has been carried to a depth of over a thousand yards, and took about three years to accomplish. This, is stated to be the most important discovery of coal made in the present century.

FATAL EXPLOSION AT A DYNAMITE FACTORY.—A fatal accident occurred last week at the dynamite factory of the National Explosives Company, Hayle, Cornwall. Two men were engaged in mixing gelignite when the material exploded, and the house in which they were working was hurled into the air. The workmen, James Perry, of Herland, and Samuel Craze, of Hayle, were instantly killed, their bodies being blown to fragments, about 600lb. of the gelignite having exploded. The cause of the accident is unknown, but will be thoroughly investigated. The explosion was heard a long distance, and the buildings in the neighbourhood suffered severely.

WILL DO THEM FOR NOTHING SOON.—The Luton Town Council has lately been discussing the appointment of a borough analyst. Dr. S. Rideal required a retaining fee of 20 guineas, which would be inclusive of the first 20 analyses, 10s. 6d. per analysis after, and £2. 2s. for a water analysis. Mr. A. E. Ekins, chemist, of St. Albans, asked no retaining fee, but required 10s. 6d. per sample analysed. Alderman Oakley proposed the appointment of Mr. A. E. Ekins, subject to his diplomas being satisfactory to the Sanitary Committee. Seeing that Mr. Ekins had held a similar post for the neighbouring county of Hertford, he did not think they could be going far wrong in appointing him. A long discussion ensued, during which Councillor Hayward suggested that the Council might make arrangements with the gentleman appointed to analyse samples for traders or residents in the town at a lower fee, so that they might be protected against any adulteration on the part of the retailers.

SOLWAY HEMATITE IRON COMPANY.—A meeting of the creditors of the Solway Hematite Iron Company (Limited) was held at Maryport recently. The statement of affairs presented by the liquidators showed that the liabilities were £142,592., and the assets £66,033., showing a deficiency of £76,559. It appeared that the balance at debit of profit and loss account in June, 1891, was £44,442. This was reduced by rather more than £500. during the next year, but in the year ending June, 1893, there was a loss of nearly £10,000. In the following year, ending in June last, there was a further loss of £12,757, augmented in July by nearly £900. These losses, combined with about £9,000. for depreciated value of stocks, and damages for breach of contracts, made up the deficiency already mentioned. After discussion, a committee was appointed to investigate the affair thoroughly and to report to another meeting. It was stated that a reconstruction by the present shareholders would not be possible.

THE ELECTRIC CONSTRUCTION CO., LIMITED.—The report of the directors for the twelve months to June 30th states that during the year shares and debentures of other companies have been sold at a profit of £15,764. The profit and loss account shows a gross profit of £55,362, and, after deducting all general charges, interest on debentures, and borrowed capital, and cost of maintaining buildings, plant, and patents, and a sum of £3,000. for depreciation, there remains £18,467. The directors recommend that this balance be appropriated as follows:—£12,500 in reducing the amount at debit of shares and debentures of other companies account, £1,888. in writing off the reconstruction and preliminary expenses, and £1,819. in paying the dividend on the preference shares at the rate of 7 per cent. per annum for the year, leaving £2,260. to be carried forward to next account. The liabilities of the company have been reduced during the year by £48,236. The business has to some extent been interrupted by the reconstruction of the company, and the reorganisation at Bushbury, and, under the circumstances, the results for the year may be considered satisfactory.

Market Reports.

MISCELLANEOUS CHEMICAL MARKET.

The demand for general chemicals during the past week has been satisfactory, and there are few alterations in prices to report. Bleaching powder quiet at £7. 10s., softwoods, rails, makers' works, and £8. hardwoods, f.o.b. For good contracts over 1895 for home trade £7., f.o.r., is generally quoted. Caustic soda continues to sell freely, and prices are firmer, current quotations are:—f.o.b. Tyne, 77%, £10. 15s.; f.o.b. Liverpool, 74%, £9. 15s.; 70%, £8. 15s.; 60%, £7. 15s. nett per ton, in 10-ton lots and upwards. Saltcake still unchanged. Soda crystals remain steady at former prices. Chlorate of potash flat at 6¼d. per lb., soda 8d. per lb. Nitrate of soda quiet at £9. per ton. Sulphur has a slightly better demand, but prices do not improve. Litharge moves slowly at prices ranging from £12. 10s. to £13. 10s. per ton, according to quality. Foreign white sugar of lead is in poor request, and price stands at £24. 10s., c.i.f. Acetate of soda shows signs of improvement, and quotations ruling are about 5s. per ton higher. Acetates of lime are much stronger, and are quoted with an advance of 10s. per ton: there is, however, no large amount of actual business passing. White powdered arsenic is in better demand, and £13. 15s. to £13. 17s. 6d. is to-day's value. Sulphate of copper quiet at £14. 10s., f.o.b. Carbolic acids are firm: crude, 60° and 70°, sell freely, and a good amount of business has been done, both prompt and forward—1s. 7d. for 60° and 1s. 10d. for 70°, rails, may be taken as to-day's figures. Crystal, 39/40°, 6d. per lb. Oxalic acid in moderate request at 3½d. per lb.

REPORT ON MANURE MATERIAL.

The market has been quiet all round, but prices do not show any material alteration. The quotations for 75/80% Florida phosphate rock remain 8¼d. c.i.f. to Baltic, 8d. c. f. & i. to Continent, and 7¾d. c.i.f. to good United Kingdom ports, 1895 steamer shipment, but these prices do not seem to be inducing much business at the moment. South Carolina rock offers more freely, and 6¼d., c. f. & i., is probably about the value. Peace River rock offers for shipment ahead, and the value is about 6½d. per unit; Algerian phosphates offer at 6½d. to 7d. per unit, according to grade. The market for River Plate bones is very firm, and £4. 11s. 3d. to £4. 12s. 6d. would likely be paid for any cargo of handy size, to coast for orders; large cargoes are scarcely worth as much. Sales of fine Kurrachee bone meal are reported at £4. 17s. 6d. to Hull, and this price is required for Bombay, but so far buyers will not pay the money. Crushed Kurrachee bones, autumn shipment, may be had at £4. 15s., ex quay Liverpool or ex ship Hull. Common grinding bones are in request at £4. 5s. to £4. 7s. 6d. per ton, ex quay at Liverpool. Nitrate of soda is quiet, but firm: on spot the value of fine quality is 9s. 1½d. per cwt., and of ordinary 9s. per

cwt., ex store. Due cargoes are worth about 9s. per cwt., and autumn sailings 9s. 1½d. to 9s. 3d. per cwt., according to position, ordinary quality.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 43s. 7½d., Middlesbrough 36s. 5½d. cash, and hematite 44s. 7½d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £39. 18s. 9d. to £40. 3s. 9d., cash, and £40. 6s. 3d. to £40. 11s. 3d. three months. Tin, dull: Straits closed at £71. 10s. to £72. cash, and £71. 17s. 6d. to £72. 7s. 6d. three months; Australian, £72.; English ingots, £73. 10s. Lead, quiet: Spanish, £9. 18s. 9d.; English, £10. to £10. 2s. 6d.; Silesian Spelter, ordinary, £12. 12s. 6d. Nickel, 1s. 5d. Antimony, £32. 10s. Quicksilver: first hands, £6. 10s.; second hands, £6. 9s. Copper shares, quiet: Cape, 1½ to 1½; Copiapo, 2 to 2½; Libiola, 3½ to 3½; Mason and Barry, 2½ to 3; Rio Tinto, 15 to 15½; Tharsis, 4½ to 4½.

WOLVERHAMPTON, WEDNESDAY.—Business to-day was fairly active, and owing to the Scotch settlement prospects, greater cheerfulness prevailed. Prices were firm, though no conspicuous advance took place. Galvanised sheets, doubles weat £9. 15s. to £10.; plain doubles, £6. 12s. 6d., minimum; common bars firm at £5. 10s., and merchant bars and hoops, £6. 10s. Pig-iron strong: local best, 55s. to 57s.; and common, 38s. to 40s. Steel brisken and quotations rigid. Boiler tube strip, £6. 10s., and bridge plates, £6. 15s. Cinder pigs, 38s. 6d.

GLASGOW, WEDNESDAY.—Market firm, with fair business. Scotch done at 43s. 11½d., 43s. 11d., and 43s. 11½d. cash, also at 44s. 2½d., 44s. 1½d., and 44s. 2d. one month; closing with buyers at 43s. 11½d. cash, sellers ask 44s. Cleveland closes with buyers at 36s. 7d. cash, sellers ask 36s. 8d. Cumberland hematite closes with buyers at 44s. 11½d. cash, sellers ask 1d. more. Middlesbrough hematite closes with buyers at 43s. 7d. cash, sellers ask 43s. 8d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—The holidays consequent upon the Royal visit have interfered with business somewhat, the market being closed on Monday. Palm oil continues firm at full values. Olive is firm, and in satisfactory demand. Linseed ranges from 21s. 6d. to 22s. per cwt. for Liverpool refined in export casks. Cottonseed is in pretty good request, full values being obtainable for Liverpool refined. There is no material change in castor oil, either for good seconds Calcutta or first pressure French. Resin is steady in all grades. Spirits of turpentine continue about the same. Petroleum is being inquired for at 4d. to 5½d. for American, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Sept. 3rd, 1894, state:—

Chili Charters for the second half of August are advised as 1,400 tons, which with 600 tons for the previous fortnight makes 2,000 tons for the month. The total since 31st December is 14,350 tons, against 14,150 tons same time last year. Exchange 11½d. Since the 17th ult. there has been an irregular market, business being done at £39. 11s. 3d. cash and £39. 18s. 9d. three months, up to £40. 11s. 3d. and £40. 18s. 9d. respectively, closing steady to-day at £40. 3s. 9d. cash and £40. 11s. 3d. three months. 9,000 tons Lake Superior copper sold to American consumers at 9 cents per lb. (equivalent to about £42. per ton, c.i.f., European port), October to December delivery. This, we believe, is a continuation of a previous contract at the same price. The total stocks in Liverpool, Swansea, London, and Havre are 48,807 tons, against 47,653 tons on the 16th ult., showing an increase of 1,154 tons for the fortnight. The figures for the previous fortnight showed a decrease of 322 tons, making the increase for the month 832 tons. The stocks include about 1,900 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,392

tons, against 50,933 tons on the 17th August, showing an increase of 1,459 tons. This month's figures show an increase of 1,099 tons. The stock of English G.M.B.'s in Liverpool is nil. Refined and manufactured sorts are steady, quotations being:—Tough cake, £42. 10s. to £43.; best select, £43. 5s. to £43. 15s.; Indian sheets, £48.; strong sheets, £51.; and yellow metal sheets, 4¼d. per lb.

The sales of furnace material comprise at Liverpool:—393 tons Chili regulus, at 8s.; 60 tons Spanish precipitate, at 8s.; 25 tons Chili ore, at 7s. 6d.; 42 tons Cueva de la Mora precipitate, at 8s. per unit. 12/1400 tons Sotiel ore and 29 tons Argentiferous Chili Regulus, on private terms.

TYNE CHEMICAL REPORT.

TUESDAY.

The prices of chemicals continue steady and shipments are somewhat improved. Soda crystals, £2. 1s. per ton, gross weight. Bleach £7. 5s. per ton; sulphur, £3. 17s. 6d. and £4.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £9. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt continues firm at 10s. 6d. per ton, f.o.b. Tees.

COALS.—The coal trade continues steady. Best Northumbrian steam, 10s. 9d. to 11s. per ton, f.o.b.; small steam, at 5s. per ton. There is a weakness in the demand for bunker coals, but for best Durham gas coals there is an increasing demand both locally and generally. Coke is unaltered at from 13s. and 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia still continues quite lifeless, and the value cannot now be stated at anything above £13. 10s. Probably there are holders who would trade at something under that if tempted by *bonafide* offers. Considering the poorness of the demand it is indeed matter for surprise that the nominal value has not dropped lower than it has done.

Reports as to the condition of the market for general chemicals are rather inconsistent, some designating it as firm and steady, while others set it down as stagnant. It is certainly firm and steady in the sense that prices are held; but with the exception of some considerable overseas shipment during the week in fulfilment of past orders, movement—what of it there has been, takes too much the shape of mere inquiry. The Scotch miners' strike still continues, and the question of fuel supply becomes urgent in various quarters. Some of the factories have been existing on imported English coal. In at least one of these cases the works overseer reports that while a higher price is paid for this imported coal, there is 25 per cent. more of service efficiency to be got out of it, as compared with the usual Scotch sorts—which, if true, goes so far to equalise cost.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £13. 10s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4d. to 4¼d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales,

¾d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of sugar at Greenock were 2,638 baskets and 8,902 bags of unrefined, also 200 bags of refined.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The outlook here in all departments of the trade is very cheery; the demand is most encouraging compared with the monotonous times of the last few months. The imports up to date, compared with same period of a year ago, are: Linseed 325,876 quarters, against 224,541 quarters; rapeseed 94,710 quarters, against 42,222 quarters; cottonseed 128,834 tons, against 117,794 tons; olive oil 16,554 casks, against 7,527 casks; rape oil 5,547 casks, against 4,810 casks; oilcakes 11,715 tons, against 14,193 tons; tallow 17,275 cwt., against 21,025 cwt.; turpentine 15,065 barrels, against 11,776 barrels. Linseed oil remains steady, at 19s. 7½d. naked, spot; month, 19s. 6d. Forward deliveries have been rather firmer, and 19s. is now required either for October-December or January-April; boiled double, 20s. 4½d.; pale boiled, 20s. 6d.; casks, 17s. 6d.; and barrels 22s. 6d. per ton extra. Export for the week has been 1,460 cwt. Refined cotton oil firm, at 18s. 10½d. naked, spot; September-October, 18s. 9d.; November-April, 17s. 9d.; edible cotton oil, 21s., in barrels. "Vegaline," a new perfectly white vegetable fat, is quoted at 30s. per cwt. in barrels, and 31s. packed in rcwt. cases. Rape oil is now in fair demand and a shade dearer. Castor oil is very firm and dearer. Spirits of turpentine, 22s. per cwt. Cod oil, £17. to £20. per ton. Sod oil continues in better demand, £16. to £21. per ton. Soft soap, 14s. 6d. per cwt. Boiled oil substitute or drying oil, £12 per ton. Open flame lamp oil from 1s. 4d. per gallon. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes are held for 2s. 6d. to 5s. per ton advance, and cottons are steady, at late rates, the demand for both descriptions, however, being only small owing to the progress of the harvest.

PAINTS.—Some little change is experienced in demand, but prices remain unchanged. White lead and oxide of zinc, unchanged; red lead, £13. per ton. Oxide of iron, dry, from £7. per ton. Venetian red, dry, from £4. per ton; blue black, £4. 5s.; mineral black, £4; yellow ochre, dry, of good staining power, from £3. 15s. Ultramarines from 3d. to 8d. per lb. Black varnish, in barrels, £5. per ton; Paint remover, 30s. per cwt. Ready-mixed paints from £24. per ton. Oak varnish, 5s. 6d. per gallon.

New Companies.

C. Pass and Son, Ltd. CAPITAL £100,000. in shares of £10. each (50,000 preferential and 50,000 ordinary). This company has been formed to trade as smelters and refiners of metals and metallurgical products, and to acquire the business carried on by C. Pass and Son, Bristol. The subscribers to the memorandum of association are: A. C. Pass, Bedminster, Bristol, smelter; C. Pass, The Holmes, Stoke Bishop, married woman; M. Pass, Clifton, Bristol, spinster; A. Trapnell, Bedminster, Bristol, smelter; L. Trapnell, Clifton, Bristol, married woman; S. H. Badock, Bedminster, Bristol, smelter; C. N. M. Warren, Bedminster, Bristol, gentleman.

Thos. Fewster and Son, Ltd.—CAPITAL £20,000. in shares of £10. each, made up of 800 preferential and 1,200 ordinary. This company has been formed to acquire the business of C. E. Fewster and to

trade as paint, varnish, and patent dryer manufacturers. The subscribers to the memorandum of association are: C. E. Fewster, Princes-avenue, Hull, paint manufacturer; I. C. J. G. Fewster, Princes-avenue, Hull, married woman; R. K. Witty, 32, Silver-street, Hull, bank manager; W. P. Burkinshaw, Parliament-street, Hull, accountant; G. A. Gale, West Hill, Hessle, near Hull, accountant; T. H. Sissons, Hull, paint and colour manufacturer; D. W. Sissons, Hull, paint and colour manufacturer.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Pumps for Compressing Air. B. J. Hall. 16,377. August 27.
Process and Apparatus for Obtaining Magnesium Manganate and Hydrochloric Acid, from the Double Chloride of Manganese and Magnesium, or for Utilising Certain Residual Liquors Produced in the Manufacture of Chlorine. E. Hückse. 16,380. August 27.
Producing Metallic Carbides and Illuminating Gas. G. B. Ellis. 16,342. August 27.
Improvements in Ore Breakers. R. D. Gates. 16,398. August 28.
Treating Vegetable and Animal and Fish Oils, Greases, &c. S. Rosenblum and F. L. Bartlett. 16,417. August 28.
Improvements in Manufacture of Disinfectants. R. England. 16,422. August 28.
Insecticide Material. J. Taylor. 16,448. August 29.
Manufacture of Potassium Cyanide and Yellow Prussiate of Potash from Carbazol and Alkali Compounds. G. Kraemer. 16,539. August 30.
Improvements in the Transport of Sulphuric, Hydrochloric, Nitric and Other Corrosive Acids. R. England. 16,536. August 30.
Substitutes for Coffee. R. Haddon. 16,548. August 30.
Manufacture of Ortho and Para-oxo-ortho Toluic Acids, and Meta-cresol. G. W. Johnson. 16,559. August 30.
Manufacture of Paper. P. C. Peebles. 16,612. August 31.
Drying Apparatus. W. H. Bowers. 16,650. September 1.
Distilling, Evaporating and Concentrating Apparatus. J. T. Bottomley. 16,651. September 1.
Electro Depositing Apparatus. H. Le Roy Bridgeman. 16,696. September 1.
Refrigerating Machines. P. Giffard, L. J. M. Boucay, and E. Foucher. 16,698. September 1.
Manufacture of Patent Fuel. G. S. and C. Cory. 16,700. September 1.
Manufacture of Patent Fuel. G. S. and C. Cory. 16,701. September 1.
Improved Metallic Carbides, and Producing the Same. T. L. Willson. 16,705. September 1.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

F. W. CARNABY and W. H. MANNERS, chemists and druggists, Waterloo, Blyth, under the style of Carnaby and Co.
E. DAVIS and E. B. JACKSON, india-rubber manufacturers, Moseley Bottoms, Chester, under the style of the Moseley Rubber Co.
G. FOSTER and W. E. SIDDALL, paper merchants, Manchester, under the style of Foster and Siddall.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

GOOCH, WILLIAM DAVID, Willes-road, Kentish Town, N.W., late Victoria Mansions, S.W., electrical engineer.

Adjudications.

CUTLER, FREDRICK WILLIAM OWENS, Birmingham, glass merchant.
MARTIN, SAMUEL, West Hartlepool, paint manufacturer.
FLOWRIGHT, JAMES JACKSON, King's Lynn and Watlington, Norfolk, brick and tile manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.							
Week ending September 1st.							
Acetic Acid —		Aluminium —		Canada,	390	W. Byford	Hong Kong, 349
Holland, 113 pkgs. A. & M. Zimmermann		France, 440	Arnati & Harrison	"	1,718	G. Ward & Sons	" 134
				"	8,000	Beck & Pollitzer	Japan, 2
Ammonium Chloride —		Ammonium Chloride —		Barytes —			
Holland, 15 pkgs. H. Lorenz		" 4	Kaltenbach & Schmitz	Belgium, 58 cks. J. L. Lyon & Co.			Caoutchouc —
" " 4		Aniline Salts —		" 53	Burrell & Co.	Aden, 6 c.	Prop. Bull Wf.
Acetone —		Germany, 2 pkgs. H. Lambert		Holland, 59 cks. D. Storer & Sons		E. Indies, 72	Ross & Deering
Holland, 1 pkg. Beresford & Co.		Anthracene —		Bleaching Soda —		France, 11	H. Johnson & Sons
Alkali —		Holland, 166 pkgs. Burt, Boulton & Co.		Germany, 100 pkgs. H. Lambert		Zanzibar, 6	Forbes & Co.
France, 220 c. Arnati & Harrison		Antimony Ore —		Camphor —		Madagascar, 120	Procter Bra.
Alum —		Sydney, 47 t. Vivian, Younger & Co.		Japan, 2 pkgs. Hoare, Wilson & Co.		E. Indies, 4	Hammond & Co.
Germany, 100 pkgs. R. W. Greeff & Co.		Asbestos —		Hong Kong, 100	R. Warner & Co., Ltd.	Madagascar, 103	Prop. Bull Wf.
Holland, 30		Holland, 446	Phillips & Graves	Germany, 1	T. H. Lee	France, 22	L. & I. D. Jt. Co.
" 145				" 6	L. & I. D. Jt. Co.		H. Johnson & Sons
Belgium, 24						Castor Oil —	
						E. Indies, 325 cks. 2 cs.	Cayzer, Irvine & Co.

Caustic Potash—

France,	200 c.	J. Knight & Sons
Germany,	46 pkgs.	T. H. Lee
"	45	Craven & Co.
"	3	L. & I. D. Jt. Co.
"	6	Phillips & Graves
"	10	F. Boehm
Holland,	3	W. Burton & Sons
"	11	H. Johnson & Sons
"	150	A. & M. Zimmermann
"	1	Rosenberg, Loewe, & Co.
Belgium,	16	Union L. Co.

Citric Acid—

Germany,	10 pkgs.	A. & M. Zimmermann
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Copperas—

Germany,	1 pkge.	City Coml. Wf., Ld.
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Cream of Tartar—

Spain,	10 pkgs.	W. C. Bacon & Co.
France,	15	Robinson & Co.
"	20	B. & F. Wf. Co.
"	6	J. L. Lyon & Co.
Holland,	68	Kirkpatrick & Co.

Dyestuffs—

France,	1 pkge.	B. & F. Wf. Co.
"	10 pkgs.	C. Faust & Co.

Cochineal

Canaries,	4 pkgs.	Sperling & Williams
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Extracts

Denmark,	1 pkge.	M. D. Co.
Germany,	17 pkgs.	J. Knill & Co.
Belgium,	30	Leach & Co.
France,	200	Hepburn & Co.
"	20	Beresford & Co.
"	120	L. J. Levinstein & Sons
Denmark,	16	Bailey & Leatham
Austria,	700	A. J. Humphrey
Canada,	640	"

Indigo

E. Indies,	5 chis.	H. Johnson & Sons
"	2	L. & I. D. Jt. Co.
"	8	Croysdale & Co.
"	57	Parry & Co.
"	7	R. Von Glehn & Sons
"	5	Arbuthnot, Latham & Co.
"	15	Stansbury & Co.

Logwood

B. W. I.,	3 t.	Dennery Co., Ltd.
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Myrabolams

E. Indies,	4,057 pkgs.	A. Hagan
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Orchella

Ceylon,	5 pkgs.	Prop. Sun. Wf.
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Safflower

E. Indies,	2 pkgs.	Devitt & Hett
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Shumac

France,	100 pkgs.	R. Warner & Co., Ltd.
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Tanner's Bark

Adelaide,	70 t.	Baxter & Hoare
"	18	Beresford & Co.
Natal,	137	A. & W. Nesbitt
"	48	Flack, Chandler & Co.
S. Australia,	50	J. Greig
"	34	Berry, Barclay & Co.
"	129	Devitt & Hett

Turmeric

E. Indies,	41 pkgs.	Lewis & Peat
"	113	L. & I. D. Jt. Co.
"	500	Hoare, Wilson & Co.
"	120	Anderson, Weber & Smith
"	157	Devitt & Hett

Farina—

Holland,	100 pkgs.	Windmuller & Co.
Germany,	100	C. Tennant, Sons & Co.

Glucose—

Germany,	24 pkgs.	200 c. Prop. Sun. Wf.
"	63	511 c. Prop. Chmbln.'s Wf.
"	325	510 J. Barber & Co.
"	25	200 Pillow, Jones & Co.
"	300	300 Trier, Meyer & Co.
"	37	250 Windmuller & Co.
Holland,	10	80 F. H. & A. Collier
U. States,	100	562 Deering & Robottom

"	450	2,474 Prop. Chmbln.'s Wf.
Germany,	26	210 M. D. Co.
"	40	40 Barrett,
"	40	40 Tagant & Co.
France,	206	206 J. Barber & Co.
U. States,	100	562 Prop. Scott's Wf.
"	50	275 C. Southwell & Co.

Lead Acetate—

Germany,	9 pkgs.	F. Boehm
"	16	Beresford & Co.

Manganese Ore—

Greece,	730 t.	Ekman, Pulp & Paper Co.
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Manure—

E. Indies,	300 t.	F. J. Cornwell,
U. States,	1,400	Wyllie & Gordon
"	35	Prop. Chmbln.'s Wf.
W. Indies,	250	London Phosphate Syndicate, Ltd.
France,	13	J. Burnett & Sons

Methyl Alcohol—

Holland,	14 dms.	Stein Brs
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Mica—

E. Indies,	£ 255	W. M. Smith & Sons.
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Naphthalene—

E. Indies,	415	Hale & Son.
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Ochre—

Germany,	38 pkgs.	Fleming's Oil Co.
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Paraffin Wax—

Spain,	10 brls.	H. Johnson & Sons
Holland,	4 pkgs.	Phillips & Graves
France,	58 brls.	W. Harrison & Co.
"	15	Beck & Pollitzer
"	15 cks.	J. L. Lyon & Co.

Phosphate Rock—

Belgium,	50 t.	Anglo-Cont. G. Wks.
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Pitch—

N. Russia,	300 cks.	Linck, Moeller, & Co.
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Plumbago—

Ceylon,	70 cks.	Doulton & Co.
"	67	A. Howden & Co.
"	203	Lucas & Spencer's Wf.
"	192 brls.	Beresford & Co.

Potash—

France,	110 c.	Petri Brs.
Canada,	76	Charles & Fox

Potassium Carbonate—

Germany,	100 c.	C. Lamb & Co.
"	200	Greeff & Co.
France,	60	J. A. Reid
Germany,	50	F. Boehm

Potassium Sulphate—

France,	59 pkgs.	Mead Son & Co.
"	50	Petri Brs.

Quicksilver—

France,	30 brls.	J. Burnett & Sons
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Rosin—

Holland,	18 brls.	Hernu, Peron & Co.
"	1	W. H. Carey & Sons

Saltpetre—

Germany,	57 cks.	P. Hecker & Co.
E. Indies,	565 bgs.	C. Wimbly & Co.
"	458	Ralli Brs.
Germany,	4 cks.	Petri Brs.

Silica—

Germany,	437 bgs.	A. Haacke & Co.
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Sodium Sulphate—

Belgium,	16 pkgs.	Greeff & Co.
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Starch—

Germany,	3,680 pkgs.	Horne & Co.
"	40	Phillips & Graves
Holland,	40	"
U. States,	295	Oswego Co.
Belgium,	200	T. H. Lee
"	40	H. Johnson & Sons
"	30	F. Rosenthal & Co.
"	235	Leach & Co.
"	210	Magee, Taylor, & Co.
"	40	Barrett, Tagant, & Co.
Holland,	105	Magee, Taylor, & Co.
"	760	Little & Johnston

Stearine—

Belgium,	8 cks.	H. Fehr & Co.
"	50 bgs.	H. Hill & Sons
France,	120	Walbaum & Tosetti
"	67	Beresford & Co.

Sulphur—

Belgium,	10 t.	Hammond & Co.
Italy,	39	M. D. Co.

Tar—

N. Russia,	3,350 brls.	Linck, Moeller, & Co.
"	150	Elkan & Co.

Tartaric Acid—

Holland,	14 pkgs.	Kirkpatrick & Co.
"	6	F. C. Devon & Co.

Turpentine—

France,	40 cks.	T. Trapp & Sons
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Ultramarine—

Holland,	3 cs.	G. Rahn & Co.
"	7	Haefner, Hilpert, & Co.
Germany,	7	H. Brooks & Co.
"	35 cks.	Steinhoff, Sons,

Varnish—

France,	12 pkgs.	Flageollet & Co.
Belgium,	19	Stobbe, Wilson, & Co.
"	2	Wilson & Co.

White Lead—

Germany,	54 cks.	Burrell & Co.
"	10	Randall Bros
"	57	T. & W. Farmiloe
"	10 cs.	Grosscurth & Co.
Belgium,	28	Colthurst & Harding
"	49	T. & W. Farmiloe
Holland,	500	Soundy & Sons
France,	45 brls.	W. Harrison & Co.
Germany,	15	Petri Brs.
"	81	M. Ashby, Ltd.
"	4	Haefner, Hilpert, & Co.
Holland,	32	Spies Brs & Co.

Wood Pulp

Germany,	10 pkgs.	O. Scholzig
Holland,	1,305	Little & Johnston
"	1,305	E. J. & W. Goldsmith
Norway,	1,120	L. Knoblach
"	1,790	Moreton Cox Brs
"	80	W. G. Taylor & Co.
Holland,	173	Henderson, Craig, & Co.
Germany,	50	C. J. Capes & Co.
"	364	C. Christophersen & Co.
Norway,	16	E. J. & W. Goldsmith

Zinc Oxide—

Germany,	50 cks.	Burrell & Co.
Holland,	20	Prop. Dowgate Dk.
"	175 brls.	M. Ashby, Ltd.
Germany,	25 cks.	J. Matton

Zinc White—

Holland,	50 cks.	Burrell & Co.
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LIVERPOOL.

Week ending August 30th.

Acetic Acid—

Rotterdam,	17 brls.	Burrell & Co.
Antwerp,	10 brls.	Prop. Dowgate Dk.

Aluminium—

New York,	16 brls.	25 cs. W. S. Sample
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Ammonia—

New York,	30 cylds.	"
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Antimony—

Antofagasta,	144 bgs.	Aillon, Aramayo & Co.
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Barytes—

Antwerp,	22 cks.	90 bgs.
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Benzine—

Philadelphia,	300 brls.	"
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Boracic Acid—

Leghorn,	34 cks.	"
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Borate of Lime—

Iquique,	413 sks.	"
Antofagasta,	710 bgs.	"
"	398	Schwann & Co.

Camphor—

Hamburg,	1 ck.	4 cs.
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Castor Oil—

Marseilles,	12 cks.	J. J. Mack & Son
"	6	Belfast S. S. Co.
"	180	"
Genoa,	12 cs.	"

Caustic Soda—

New Orleans,	10 dms.	United Alkali Co.
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Cellulose—

Fiume,	50 brls.	W. Friedlander
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Colours—

Paris,	3 cks.	Marwood & Christian
Hamburg,	00	10 cs.
Antwerp,	7 tns.	4 brls.

Cottonseed Oil—

New York,	100 brls.	"
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Cream of Tartar—

Barcelona,	5 pps.	"
Marseilles,	8 cks.	"

Dyestuffs—

Argols	38 cs.	M. D. Frangopulo
Patras,	209 bgs.	"

Gutch

Rangoon,	4,145 bxs	"
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Extracts

Philadelphia,	100 bks.	"
Boston,	25 brls.	"
New York,	50	"
Marseilles,	10 cks.	"
Fiume,	210 brls.	De Clermont & Donner
"	400	Oak Extract Co.
"	535	"

Nantes

Patras,	285 bls.	P. Y. Mariachi
Savanna,	2,148 lgs.	G. H. Muller & Co.
"	825 ps.	Leech Harrison & Co.

Pastie

"	2 cs.	"
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Gambier

Singapore,	5,329 bls	91 bgs.
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Indigo

Venice,	2 cs.	"
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Madder

Larnaca,	3 bls.	Papodop Constantinides
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Rotterdam

"	1 ck.	"
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Myrabol

Tar —		
New York,	60 brls.	
Tartar —		
Bordeaux,	9 cks.	
Tartaric Acid —		
Rotterdam,	2 cks.	
Turpentine —		
Trieste,	12 cs.	
Yarnish —		
New York,	2 brls.	F. Crane Chemical Co.
Verdigris —		
Bordeaux,	2 cks.	
Waste Salt —		
Hamburg,	100 t.	
White Lead —		
Rotterdam,	26 cks.	
Antwerp,	11	
Wood Pulp —		
Gothenburg,	100 bls.	F. E. Foulger
Montreal,	13,201 brls.	A. Rice & Co.
Wood Spirit —		
Hamburg,	3 dms.	
Zinc Oxide —		
New York,	50 brls.	
Rotterdam,	15 cks.	
Antwerp,	65	
Zinc Skimmings —		
New York,	6 cks.	7 brls.
Zinc White —		
Rotterdam,	150 cks.	O. & H. Marcus
"	150	

MANCHESTER.

Week ending September 1st.

Antimony Salt —		
Rotterdam,	5 cks.	Simpson, Howden, & Co.
Arachide Oil —		
Rotterdam,	10 cks.	Simpson, Howden, & Co.
Barytes —		
Rotterdam,	5 cks. 117 bgs.	Simpson, Howden, & Co.
Antwerp,	100 bgs.	
Camphor —		
Hamburg,	2 cks.	
Carbolic Acid —		
Rotterdam,	20 tubes.	
Castor Oil —		
Antwerp,	28 brls.	
Cellulose —		
Hamburg,	506 bls.	
Colours —		
Rotterdam,	19 cs. 2 cks. 21 brls. 2 bxs.	
"	20 44 18	Simpson, Howden, & Co.
Hamburg,	6	
Antwerp,	15	
Dyestuffs —		
Extracts		
Treport,	50 cks.	
Rouen,	15	
Farina —		
Hamburg,	250 bgs.	
Limestone —		
Antwerp,	2 crts.	
Litharge —		
Rotterdam,	3 cks.	Simpson, Howden, & Co.
Potash —		
Treport,	5 cks.	
Rotterdam,	10	Simpson, Howden, & Co.
Hamburg,	37	
Potassium Chromate —		
Hamburg,	1 ck.	
Potassium Sulphate —		
Rotterdam,	90 cks.	Simpson, Howden, & Co.
Salt —		
Hamburg,	99 bgs.	
Soda —		
Antwerp,	10 cks.	
Sodium Nitrate —		
Rotterdam,	8 cks.	Simpson, Howden, & Co.
Starch —		
Rotterdam,	5 cks.	
Antwerp,	200 cs.	
Tartar —		
Bordeaux,	1 ck.	
Tartaric Acid —		
Rotterdam,	4 cks.	

Tar Waste —		
Rotterdam,	4 cks.	
Antwerp,	110 bls.	
Ultramarine —		
Rotterdam,	20 cs.	
Wood Pulp —		
Rotterdam,	420 pkgs.	Simpson, Howden, & Co.
"	200	
Zinc Oxide —		
Rotterdam,	10 brls.	Simpson, Howden, & Co.

HULL.

Week ending September 1st.

Acid —		
Hamburg,	4 cks.	Wilson, Sons, & Co., Ltd.
Aniline Colours —		
Amsterdam,	1 kg.	
Barytes —		
Rotterdam,	23 cks.	Hutchinson & Son
Antwerp,	11	Bailey & Leatham
"	200 bgs.	H. F. Pudsey
"	19 cks.	
Chemicals (otherwise undes.) —		
Bremen,	2 cs.	Veltmann & Co.
Hamburg,	10 pkgs.	Wilson, Sons, & Co., Ltd.
Dunkirk,	45	"
"	20 dms.	"
Antwerp,	135 bgs.	"
Bergen,	104 pkgs.	"
Colours —		
Rotterdam,	16 pkgs. 24 cks. 4 cs.	Hutchinson & Son
"	5 cs. 86	41 cks. W. & C. L. Ringrose
Hamburg,	4	Sissons Bros. & Co.
Bremen,	6	Blundell, Spence, & Co.
Hamburg,	2	Wilson, Sons, & Co., Ltd.
"	1	Camell, Haigh, & Co.
Dextrine —		
Stettin,	40 bgs.	Wilson, Sons, & Co., Ltd.
Dyestuffs —		
Alizarine		
Rotterdam,	30 brls. 3 pkgs.	Hutchinson & Son
Madder —		
Rotterdam,	3 cks.	Hutchinson & Son
Farina —		
Stettin,	308 bgs.	Wilson, Sons, & Co., Ltd.
Harlingen,	600	
Ghent,	88 cs.	"
Hamburg,	50	
Glucose —		
Stettin,	200 bgs. 25 cks.	
New York,	400 brls.	
Lead Acetate —		
Stettin,	43 brls.	Wilson, Sons, & Co., Ltd.
Manure —		
Ghent,	182 t.	Wilson, Sons, & Co., Ltd.
Stavanger,	535 bgs.	"
Ochre —		
Rouen,	27 cks.	Rawson & Robinson
Rosin —		
Antwerp,	2 brls.	J. & T. Seddon
Soda —		
Rotterdam,	1 ck.	W. & C. L. Ringrose
Starch —		
Rotterdam,	40 cs.	Hutchinson & Son
"	36	
Bremen,	1,177	Veltmann & Co.
Antwerp,	121	Wilson, Sons, & Co., Ltd.
Stearine —		
Antwerp,	7 bgs.	Wilson, Sons, & Co., Ltd.
"	32	
Tar —		
Archangel,	2,410 brls.	
Tartaric Acid —		
Rotterdam,	2 brls. 8 cks.	Hutchinson & Son

"	2 cks.	W. & C. L. Ringrose
Turpentine —		
Libau,	52 brls.	
Ultramarine —		
Bremen,	34 cks.	
Yarnish —		
New York,	23 brls.	Wilson, Sons, & Co., Ltd.
White Lead —		
Antwerp,	50 cks.	Bailey & Leatham
Rotterdam,	29 cks.	W. & C. L. Ringrose
Wood Pulp —		
Hamburg,	400 bls.	Furley & Co.
Abo,	190	

GLASGOW.

Week ending September 6th.

Aniline Colours —		
Hamburg,	2 cs.	
Arachide Oil —		
Rotterdam,	1 ck.	J. Rankine & Son
Barytes —		
Rotterdam,	86 pkgs.	J. Rankine & Son
Barytes Sulphate —		
Antwerp,	100 bgs.	
Castor Oil —		
Marseilles,	222 cks. 7 cs.	
Antwerp,	143	
Colours —		
Rotterdam,	46 pkgs. 9 cks. 2 cs.	J. Rankine & Son
Cream of Tartar —		
Marseilles,	3 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	52 pkgs. 17 brls.	J. Rankine & Son
Extracts —		
Baltimore,	100 brls.	M'Arthur, Scott, & Co.
Antwerp,	4 cks.	
Logwood —		
Old Harbour, Ja.,	485 t.	Wm. Connal & Co.
Turmeric —		
Calcutta,	250 bgs.	
Yalonia —		
Smyrna,	640 t.	Martin & Millar
"	26	
Glucose —		
Hamburg,	50 cks.	
Guano —		
Tromsøe,	2,667 bgs.	J. T. Salvesen & Co.
Iceland,	806	
Christiania,	2,000	
Lead Acetate —		
Rotterdam,	43 cks.	J. Rankine & Son
Naphthaline —		
Hamburg,	1 ck.	
Painters' Colours —		
Antwerp,	3 cks. 1 cs.	
Paraffin Scale —		
New York,	450 brls.	
Phosphate Rock —		
Punta Gorda,	1,813 t.	Allan C. Gow & Co.
Pitch —		
Archangel,	400 cks.	
Potash —		
Rotterdam,	82 cks.	J. Rankine & Son
Pyrates —		
Huelva,	1,821 t.	Tharsis Co.
Rosin —		
New York,	590 brls.	
Saltpetre —		
Calcutta,	1 bx.	
Starch —		
Antwerp,	70 bgs. 100 cs.	
New York,	1,000	
Sulphur —		
Licata,	24,000 c.	T. Lawrie
Talc —		
Calcutta,	153 bgs.	
Tallow —		
New York,	120 tcs.	
Tannin —		
Hamburg,	1 ck. 5 cs.	
Tar —		
Archangel,	2,405 brls.	

Tartar —		
Oporto,	8 cks.	
Bordeaux,	6	
Tartar Emetic —		
Hamburg,	4 cks. 4 cs.	
Yarnish —		
Montreal,	12 brls.	
New York,	1 bx.	
Waste Salt —		
Hamburg,	305 t.	
White Lead —		
Rotterdam,	77 cks.	J. Rankine & Son
Wood Pulp —		
Christiania,	515 bls.	
Zinc Oxide —		
Montreal,	2 brls. 22 kgs.	

TYNE.

Week ending September 1st.

Camphor —		
Hamburg,	1 ck. 1 cs.	Tyne S. S. Co.
Chemicals (otherwise undescribed)		
Rotterdam,	1 cs.	Tyne S. S. Co.
Cod Oil —		
Bergen,	10 brls.	
Colours —		
Rotterdam,	1 bx. 6 brls.	Tyne S. S. Co.
Limestone —		
Antwerp,	1 crt.	Tyne S. S. Co.
Starch —		
Rotterdam,	94 cs.	Tyne S. S. Co.
Tartaric Acid —		
Rotterdam,	8 cks.	Tyne S. S. Co.
Ultramarine —		
Hamburg,	1 ck.	Tyne S. S. Co.
Yarnish —		
Antwerp,	3 brls.	Tyne S. S. Co.
Wood Pulp —		
Gothenburg,	240 bls.	
Skien,	670	

GOOLE.

Week ending August 29th.

Alkali —		
Calais,	10 cks.	
Carbonate of Lime —		
Antwerp,	40 bgs.	
Caustic Soda —		
Calais,	54 dms.	
Dunkirk,	20	
Dyestuffs —		
Alizarine		
Rotterdam,	39 pkgs.	
Dyestuffs (otherwise undescribed)		
Rotterdam,	266 pkgs.	
Boulogne,	14	9 cks. 1 cs.
Farina —		
Hamburg,	500 bgs.	
Delfsyzhl,	930	
Glucose —		
Hamburg,	420 bgs.	
Dunkirk,	200	
Potash —		
Rotterdam,	10 cks.	
Size —		
Boulogne,	3 cs.	
Waste Salt —		
Hamburg,	681 cks. 35 t.	
Zinc Oxide —		
Antwerp,	25 brls.	

GRIMSBY.

Week ending September 1st.

Aniline Dyes —		
Hamburg,	5 pkgs. 5 cs. 17 cks.	
Caoutchouc —		
Hamburg,	2 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	6 cks. 1 cs. 17 pkgs.	
Extracts —		
Dieppe,	25 cs.	
Antwerp,	4 brls.	
Farina —		
Hamburg,	100 bgs.	
Size —		
Antwerp,	20 cks.	
Starch —		
Antwerp,	39 cs.	
Zinc Ashes —		
Antwerp,	24 cks.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 5th.

Acetic Acid—		
Wellington,	4 cks.	£33
Acids—		
Singapore,	2 cs.	£9
Alkali—		
Shanghai,	2 t. 14 c.	£6
Adelaide,	10	27
Perth,	5	23
Alum Cake—		
Calcutta,	20 t.	£65
Ammonia Salts—		
Yokohama,	1 t. 10 c.	£54
Hiogo,	1	34
Ammonium Carbonate—		
Wellington,	2 c.	£5
Bombay,	5	10
Dunkirk,	18	32
Adelaide,	15	25
St. Petersburg,	100 kgs. 50 brls.	199
Genoa,	7 cks.	52
New York,	2 t. 15 c.	95
Ammonium Chloride—		
Hamburg,	1 t. 2 c.	£42
Varna,	12	22
Samsoun,	10	18
San Francisco,	11	18
Ammonium Sulphate—		
Cologne,	50 t.	£675
S. Jose de Guat.,	25 1 c.	355
Treport,	25	338
Ammonium Sulphide—		
Sydney,	2 c.	£18
Amorphous Phosphorus—		
Cape Town,	10 cs.	£144
Arsenic—		
Bluff,	5 t. 3 c.	£84
Yokohama,	2 10	39
Shanghai, 80 kgs.		25
San Francisco,	10	8
Benzoic Acid—		
New York,	5 cs.	£34
Bi-phosphate of Lime—		
Algoa Bay,	9 c.	£19
Bleaching Powder—		
Santos,	1 t.	£10
Borax—		
Hamburg,	12 cks.	£95
Harlingen,	10 cs.	12
Christiania,	1 t. 3 c.	58
Veile,	17	44
Melbourne,	9 3 40 kgs.	522
Sydney,	2 10	130
Carbolic Acid—		
Hong Kong,	20 drs. 10 c.	£37
Bombay,	5 cs.	£10
Rotterdam,	9 t. 14	188
Melbourne,	2	11
Hamburg,	160 cks.	1,144
Carbon Bisulphide—		
Rosario,	100 drs.	£45
Philadelphia,	6 t. 12 c.	83
Caustic Soda—		
E. London,	12 c.	£19
Hong Kong,	7	16
Wanganui,	10	23
Wellington,	1 t. 7	14
Santos,	5 7	112
Auckland,	10 3	92
Algoa Bay,	2 1	60
Hobart,	10 5	88
Perth,	3	27
Caustic Soda & Potash—		
Hong Kong,	1 t. 2 c.	£42
Chemicals (otherwise undescribed)		
Cape Town,	10 pkgs.	£51
Shanghai,	8 5 cs.	37
Terneuzen,	28 t. 1 c.	280
Auckland,	50 kgs.	48
Antwerp,	6 cs.	38
Brussels,	3 cks.	33
Rosario,	12 2 cs.	20
Adelaide,	2 c	10
Melbourne,	7	29
Calcutta,	13	16
Algoa Bay,	60 brls.	42
New York,	15 cks.	250
Bombay, 36 cs. 5 pkgs.	7 c.	£203
Citric Acid—		
Sydney,	5 c.	£33
Melbourne,	1 t. 10	196
Wanganui,	1	8
Hamburg,	2	258

Coal Products—

Alizarine		
Bombay,	75 kgs.	£329
Aniline Dyes		
Melbourne,	2 cs.	£59
Aniline Salts		
New York,	6t pkgs.	£360
Coal Tar Dyes		
Calcutta,	2 cs.	£88
St. John's, Nfld.,	1	13
Boston,	24 pkgs.	260
Creosote		
Canada,	3 cs.	£7
Naphthaline		
Libau,	3 cks.	£40
Pitch		
Constantinople,	200 cks.	£50
Algoa Bay,	10	6
Antwerp,	570 t.	882
Boston,	825	460
Ghent,	2 cs.	8
Philadelphia,	1,555	835
New York,	7 2,304 bgs.	414
Tar		
Boston,	140 cks.	£40
Tar Oil		
Dusseldorf,	3 cks.	£8
Dunkirk,	11	33
Copperas—		
Constantinople,	20 t. 9 c.	£35
Copper Sulphate—		
Algoa Bay,	9 c.	£8
Cologne,	10 t.	147
Canterbury,	1	14
Paris,	11	155
Treport,	5 10	85
Cream of Tartar—		
Algoa Bay,	10 c.	£35
Sydney,	1 t. 8	—
Yokohama,	2 10	37
Adelaide,	2 10	162
Auckland,	1 10	108
Brisbane,	1 10	93
Lyttelton,	10	33
Sydney,	7 15	523
Disinfectants—		
Wellington,	8 cs.	£21
Bombay,	78 pkgs.	59
Hypophosphite of Lime—		
New York,	1 t. 2 c.	£41
Philadelphia,	1 t.	371
Manure—		
Memel,	504 t. 15 c.	£1,482
Paris,	26	240
Hamburg,	49 5	160
Gothenburg,	98 10	246
Vancouver,	3 9	84
Harburg,	500 1	1,667
S. Jose de Guat.,	1 8	60
Stettin,	594 11	1,810
Trinidad,	6	155
Algoa Bay,	1 18	80
Nitric Acid—		
Auckland,	4 cs.	£14
Madras,	19 c.	8
Oxalic Acid—		
B. Ayres,	1 ck.	£12
Sydney,	1 t.	36
Phosphorus—		
Melbourne,	10 cs.	£101
Sydney,	8	88
Potash Crystals—		
Marseilles,	1 t. 4 c.	£30
Halifax,	1 t. 6	120
New York, 2 cs.		50
Potash Salts—		
Auckland,	2 t. 12 c.	£390
Potassium Chlorate—		
Bombay,	4 c.	£14
Gothenburg,	3 kgs.	8
Sydney,	9	30
Potassium Cyanide—		
Gympie,	1 t. 7 c.	£52
Normanton,	3 18	514
Potassium Hypophosphite—		
New York,	1 c.	£16
Potassium Iodide—		
Brisbane,	1 c.	£32
Prunella—		
New York,	1 t. 14 c.	£46
Saltpetre—		
Gibraltar,	25 t.	£531
Lisbon,	2 7 c.	47
Limoo,	2 10	57
Adelaide,	1	22

Rio de Janeiro,	3 7 79
Wellington,	10 14
Sheep Dip—	
Cape Town,	6 c. £10
Melbourne,	5 drs. 100 cks. 485
Sydney,	1,000 cs. 2,000
Antigua,	1 t. 6 c. 45
Jamaica,	50 drs. 37
Pt. Elizabeth,	1 3 40
B. Ayres 1,000 cs. 2	2,075
Algoa Bay,	3 5
Soda—	
Demerara,	16 c. £6
Soda Ash—	
Wellington,	2 t. 16 c. £14
Santos,	10 5 39
Auckland,	5 19
Hobart,	12 11 49
Soda Crystals—	
Batavia,	12 t. £30
Sydney,	10 22
Soda Salts—	
New York,	15 cks. £85
Sodium Bicarbonate—	
Brisbane,	5 t. £36
Wanganui,	2 14
New York,	1 2 c. 12
Lyttelton,	1 11
Sodium Hypophosphite—	
New York,	5 c. £98
Sodium Silicate—	
Wellington,	1 t. £6
Auckland,	5 25
Strontium Nitrate—	
New York,	2 t. 3 c. £51
Sulphur—	
E. London,	3 t. 16 c. £38
Natal,	1 11
Bluff,	2 18
Wellington,	1 6
Algoa Bay,	2 5 22
Melbourne,	100 260
Cape Town,	1 6 50 cks. 65
Sulphuric Acid—	
E. London,	10 cs. £9
Algoa Bay,	4 t. 10 c. 40
Singapore,	18 15
Superphosphate—	
Lyttelton,	5 t. £595
Melbourne,	5 90
Memel,	625 1,950
Tartaric Acid—	
Boulogne,	5 c. £26
Sydney,	1 t. 2 2
Yokohama,	6 33
Melbourne,	1 5 118
Adelaide,	1 5 95
Sydney,	1 5 94
Lyttelton,	3 15
Auckland,	5 24

LIVERPOOL.

Week ending September 5th.

Acids—		
Rio de Janeiro,	1 cs.	£10
Alum—		
Melbourne,	6 t. 1 c.	£26
Sydney,	3	14
Malta,	2 19	15
Sydney,	2 15	13
Galatz,	2 6	11
Montreal,	5 4	24
Bombay,	13 14	73
Havana,	4 15 1 q.	25
Ancona,	2	14
Brisbane,	1	7
Aluminous Cake—		
Calcutta,	22 t. 10 c. 3 q.	£83
Ammonium Carbonate—		
Genoa,	1 t. 5 c.	£40
Vigo,	12	22
Leghorn,	12	22
Hamburg,	2 17 2 q.	105
Montreal,	14	26
Antwerp,	4	7
Ammonium Chloride—		
Antwerp,	13 c.	£16
Malta,	4	7
Patras,	6	11
Gijon,	1 t. 1 3 q.	42
Rotterdam,	2 4 2	38
Ammonium Sulphate—		
Valencia,	88 t. 5 c. 2 q.	£1,511

Honolulu,	10	140
Las Palmas,	17	247
Hamburg,	5 2	70
Venice,	5 4 2	70
Barcelona,	68 7	955
Bordeaux,	4 19	70
Amorphous Phosphorus—		
Hiogo,	1 t. 2 c. 1 q.	£277
Asbestos—		
Iquitos,	1 bl.	
Barium Chlorate—		
New York,	10 c.	£48
Bisulphite of Lime—		
Rangoon,	7 t.	£35
Bleaching Powder—		
Baltimore,	162 cks.	
Boston,	324	
Havana,	4	
Maranham,	10	
Montreal,	20 5 brls.	
Naples,	106	
Newport News,	123	
New York,	95 30 bxs	
Palermo,	9	
Philadelphia,	218 50	
Rouen,	15	
St. Louis, 130 cs.		
Hong Kong,	2	
Venice,	34	
Boric Acid—		
Havre,	15 c. 3 q.	£26
Borax—		
Hamburg,	19 c.	£19
Malaga,	1 t. 4	25
Rotterdam,	11 4	220
Venice,	2	43
Lisbon,	1	26
Yokohama,	3 10	73
Calcined Magnesia—		
Guadalajara,	5 cs.	
Calcium Chloride—		
B. Ayres,	2 t. 9 c.	£6
Carbolic Acid—		
Cadiz,	8 c. 3 q.	£14
Hamburg,	1 t. 5	75
Hong Kong,	5 2 4	
Yokohama,	5 10 1	285
Kurrachee,	5 6 2	60
Rouen,	5 2	260
New York, 8 cs. 3	14 2	272
Caustic Potash—		
St. Louis,	2 t. 4 c. 3 q.	£61
Melbourne,	1	26
New York,	8 18	232
Caustic Soda—		
Adelaide,	30 dms.	10 bxs.
Antwerp,		
Barcelona,	160	36 brls.
Batavia,	50	
Bilbao,	30 11	
Boston,	25 40	
Brisbane,	42	
Chicago,	607 30	
Dunedin,	25	
Galatz,	24	
Guadalajara,	30	
Hamburg,	25	
Hong Kong,	80	2 cks.
Malaga,	21	1 6
Manila,	28	30 bxs.
Melbourne,	28	
Montreal,	56	
Naples,	60	
New Orleans,	30	
Yokohama,	825	100 20 bxs.
Odessa,	180	
Pernambuco,	19	
Portland, Or.,	50	
Rouen,	40	
St. Louis, 6 cs.		10
San Sebastian,	100	
Seville,	535	50
Stockholm,	22	
Sydney,	118	
Yokohama,	200	
Alexandria,	83	
Bahia,	75	
Charlotte Town,	30	
Genoa,	109	
Liogo,	150	
La Guayra,	25	
Messina,	65	
Milwaukee,	100	
Rangoon,	6	
San Juan,	12	
Shanghai,	54	
Tamperice,	22	

Chemicals (otherwise undescribed)

Hamburg,	4 c.	£7
Montreal,	3 t.	106
Rio de Janeiro,	4 cks.	16
Philadelphia,	13	440
Alexandria,	4	166
San Juan,	1	2
Barcelona,	1	35
Genoa,	2	88
Venice,	12	22
Odessa,	1	56

China Clay—

Boston,	1,091 t.	10 c.
Maranham,	3	4 cks.
Seville,	3	

Chloride of Lime—

Hong Kong,	11 c.	£9
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Chloroform—

Rosario,	1 cs.	
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Chromate of Lead—

Philadelphia,	3 t.	£50
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Citric Acid—

Kurrachee,	1 cs.	£11
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Coal Products—**Aniline Colours**

New York,	1 kg.	
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Aniline Dyes

Rio de Janeiro,	1 ck.	
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Aniline Oil

Rouen,	5 dms.	
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Pitch

Rouen,	2 cks.	
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St. Malo,

800 t.		
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Galatz,

30 brls.		
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Talcahuano,

500		
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Tar

Carbonear. N'd.,	12 brls.	
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Philadelphia,

105		
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St. John's, N'd.,

70	50 kgs.	
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Sierra Leone,

20		
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Valparaiso,

100 dms.		
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Coal Products (otherwise undes.)—

New York,	20 cks.	
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Colours—

Demerara,	1 brl.	
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Lisbon,

1 ck.		
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New York,

31		
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Copperas—

Alexandria,	9 t.	£14
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Copper Sulphate—

Rouen,	55 t.	9 c.
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Passages

1	2	2 q
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Hamburg,

9	19	140
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Stettin,

1	13	20
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Newfairwater,

2	5	1
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Catania,

5	13	2
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Galatz,

2	10	35
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Boston,

1	3	1
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Melbourne,

13	10	202
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Adelaide,

3		44
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Gothenburg,

7	1	3
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Sydney,

12		178
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Disinfectants—

B. Ayres,	7 cs.	1 kg.
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Bombay,

2 t.	16 c.	29
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Hioho,

1	17	100
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Dried Blood—

Rouen,	30 t.	12 c.
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Guano—

Seville,	10 t.	19 c.
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Hydrochloric Acid—

Rio de Janeiro,	8 cs.	£13
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Magnesia—

Paris,	15 cs.	
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Magnesium Chloride—

Rangoon,	4 t.	4 c.
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Bombay,

42	10	102
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Magnesium Sulphate—

Santos,	20 kgs.	
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Manure—

Rouen,	19 t.	17 c.
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Valencia,

50	11	164
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Rotterdam,

19	10	84
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St. Nazaire,

375	5	2 q. £2,016
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Huelva,

20		65
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Nickel—

Shanghai,	2 t.	
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Nitric Acid—

Rio de Janeiro,	2 cs.	£8
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Ochre—

St. John's, N'd.,	45 kgs.	
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Oxalic Acid—

Barcelona,	15 c.	£25
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Paint—

Cadiz,	50 dms.	
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Calcutta,

4 cks.		11 cs.
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Callao,

13 kgs.		
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Constantinople,

290		9
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Demerara,

11		
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Honolulu,

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Kentville,

20		1
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Lisbon,

5 brls.		10
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Manaos,

5		28
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Marseilles,

21	30	3
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Tangiers,

7		2
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Havre,

1,200		110
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Iquitos,

4		30
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Manila,

30		48
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M. Video,

133		4
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Opobo,

20		1 crt.
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Palermo,

50		1
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San Juan,

1		
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Sierra Leone,

1		
---	--	--

Valencia,

1		
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Valparaiso,

1		
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Vera Cruz,

1		
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Warri,

1		
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Painters' Colours—

Amsterdam,	8 kgs.	7 dms.
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Belize,

210	85 cks.	1 bx.
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Boston,

20	3	7 brls.
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Ferrol,

30		3 cs.
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Malta,

19		
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Maranham,

30		1
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Nassau,

40		8
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New York,

1	7	200
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Para,

120	4	10
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Philadelphia,

25		
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Piraeus,

4		
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S. John's, N'd.,

570	29	27 10 dms
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Aux Cayes,

130	2	10
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Bahia,

2		
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Bakana,

2		96
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Bombay,

30	10	4 cs.
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B. Ayres,

5		
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Candia,

180		
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Constantinople,

1		2
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Corumba,

1		1
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Gijon,

2	1	
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Lisbon,

26		5
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M. Video,

26		
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Talcahuano,

26		
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Phosphorus—

Tampico,	10 cs.	£51
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Yokohama,

10		130
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Vera Cruz,

5	16 c.	248
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Havana,

4		45
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Hioho,

75		868
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Potassium Bichromate—

Marseilles,	11 c.	£95
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Halifax,

1 ck.		17
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Potassium Chlorate—

Calcutta,	10 c.	£28
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Hamburg,

2 t.	9	140
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Genoa,

2	10	148
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St. Petersburg,

3		177
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Gutierrezsky,

22	10	1,322
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Riga,

1	10	96
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Oporto,

5		
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Rotterdam,

1		56
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Naples,

2		112
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B. Ayres,

2	5	15
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Sodium Sulphate —			
Catania, 50 dms.			
Stearine —			
Savanna, 40 bls.			
Sulphur —			
Boston, 350 t. 9 c.	£1.308		
Montreal, 10	37		
Trinidad, 9	38		
Sulphuric Acid —			
Maranham, 5 cs.	£7		
Rio de Janeiro, 1	5		
Superphosphate			
Stettin, 650 t.	£1.694		
Nantes, 287 10	498		
Turpentine —			
Ferrol, 10 dms			
Antofagasta, 20 cs.			
Salonica, 2 brls.			
Varnish —			
Barcelona, 8 cks.			
Bombay, 10 dms.			
Demerara, 5	5 brls.		
Montreal, 4 pkgs.	2 cs.		
Corfu, 6			
Genoa, 1			
Gijon, 1			
Lisbon, 1			
M. Video, 1			
Seville, 4			
White Lead —			
St. John's, Nfld., 34 kgs.			
Vera Cruz, 60 cks.			
Zinc Chloride —			
Bombay, 9 t. 10 c.	2 q. £152		
Zinc Oxide —			
Boston, 2 t. 15 c.	3 q. £25		

MANCHESTER.

Week ending September 6th.

Ammonium Chloride —			
Antwerp, 2 cks.			
Ammonium Sulphate —			
Treport, 236 bgs.			
Aniline Colours —			
Rotterdam, 1 ck.			
Caustic Soda —			
Rio de Janeiro, 4 dms.			
Chemicals (otherwise undes.) —			
Antwerp, 10 cks.			
Enschede, 10			
Colours —			
Rio de Janeiro, 2 cks.			
Copperas —			
Rio de Janeiro, 16 bls.			
Extracts —			
Germany, 3 cks.			
Tallow —			
Rotterdam, 27 cks.			
Tar Oil —			
Rotterdam, 17 dms.			
Treport, 50 cks.			
Tar Salts —			
Germany, 23 cks.			
Zinc Chloride —			
Hamburg, 2 cks.			

HULL.

Week ending September 1st.

Alkali —			
Bergen, 7 cks.			
Stettin, 5			
Ammonium Sulphate —			
Dunkirk, 50 bgs.			
Genoa, 430			
Rotterdam, 300			
Stettin, 243			
Bleaching Powder —			
Stettin, 90 cks.			
Caustic Soda —			
Naples, 32 dms.			
Stettin, 5			
Chemicals (otherwise undescribed)			
Antwerp, 5 cs.			
Amsterdam, 6 pkgs.			
Bremen, 13			
Christiania, 20			
Copenhagen, 15	5 cks.		
Genoa, 22	1		
Gothenburg, 38	22		
Hamburg, 25	2		
Konigsberg, 10	3		
Marseilles, 1			
Naples, 3			

New York, 7			
Rotterdam, 70			
St. Petersburg, 15	3		
Stettin, 2	1		
Stockholm, 2			
Cottonseed Oil —			
Antwerp, 270 c.			
Bremen, 128			
Gothenburg, 51			
Hamburg, 483			
Konigsberg, 51			
Leghorn, 30			
Rotterdam, 1,407			
Stockholm, 100			
Dyestuffs (otherwise undescribed)			
Antwerp, 75 bls.			
Amsterdam, 2 cks.			
St. Petersburg, 10	5 cs.		
Stettin, 36			
Guano —			
Dunkirk, 50 t.			
Linseed Oil —			
Bergen, 86 c.			
Christiania, 470			
Copenhagen, 34			
Christiansand, 86			
Christiansund, 52			
Drontheim, 215			
Hamburg, 313			
Hango, 104			
Rotterdam, 171			
Stavanger, 161			

Manure —			
Nakskov, 390 t.			
Rouen, 50			
Riga, 2			
Stettin, 148			
Naphtha —			
Antwerp, 8 cks.			
Ochre —			
Copenhagen, 6 cks.			
Hamburg, 5			
Painters' Colours —			
Antwerp, 10 cks. 2 cs. 143 pkgs.			
	8 dms.		
Amsterdam, 11			
Bergen, 1	95		
Christiania, 1			
Copenhagen, 4	36		
Drontheim, 5			
Dunkirk, 1			
Genoa, 24	1		
Ghent, 26	2	3	
Gothenburg, 1			
Hamburg, 12		20	
Leghorn, 1			
Naples, 20			
Rouen, 8			
Riga, 20	11		
Rotterdam, 3			
St. Petersburg, 40		1	
Stettin, 38			
Stockholm, 11	1		
Stavanger, 1			

Pitch —			
Antwerp, 200 t.			
Salt —			
Rouen, 2 bls.			
Soap —			
Amsterdam, 100 cs.			
Gothenburg, 10			
Tar —			
Copenhagen, 10 cks.			
Ghent, 200			
Gothenburg, 10			
Riga, 10			
Stettin, 5			
Varnish —			
Copenhagen, 2 cs.			
Genoa, 1 ck.			
Ghent, 1			
Gothenburg, 1			
Stockholm, 1			
Whiting —			
Rotterdam, 33 cks.			

GLASGOW.

Week ending September 6th.

Ammonia —			
M. Video, 1 t.	£44		
Ammonium Sulphate —			
B. W. Indies, 5 t.	£70		
Rouen, 54	17½ c.		
Spain, 110	1,390		
Rotterdam, 51	640		
Hamburg, 177	12	2,402	
Bleaching Powder —			
Chili, 17 c.	£22. 10s.		

Borax —			
Canada, 5 t. 11½ c.	£124		
Caustic Soda —			
Venezuela, 12 t.	£135		
Coal Products —			
Pitch			
Canada, 160			
Amsterdam, 206 t.	280		
Tar			
Boston, 24 t. 10 c.	£50		
Dyestuffs —			
Extracts			
Spain, 1 t. 11½ c.	£24		
Shumac Extract			
Canada, 5 t. 3½ c.	£60		
Dyestuffs (otherwise undescribed)			
New York, 1½ c.	£13		
Hamburg, 17 cks.	135		
Hydrochloric Acid —			
B. W. Indies, 135			
Linseed Oil —			
B. W. Indies, 1 t. 6¾ c.	£24		
Venezuela, 27			
Malta, 1	11½		
Canada, 5	2½	98	
Manure —			
New York, 20 t. 14¾ c.	£90		
B. W. Indies, 10	100		
Rouen, 9	13½	70	
Spain, 2		20	
Paint —			
New York, 9 t.	£165		
B. W. Indies, 2	13 c.	30	
Paraffin Wax —			
Italy, 10 t. 3½ c.	£237		
Trieste, 16	14¾	364	
Spain, 12	2	270	
Potassium Bichromate —			
New York, 38 t. 4¾ c.	£1,919		
M. Video, 16¾	33		
Rouen, 4	19¾	198	
Italy, 1	11¾	64	
Bergen, 1 ck.		20	
Spain, 32	¼	1,269	
Soap —			
B. W. Indies, 5 t. 4¾ c.	£74		
New York, 18	15	303	
Sodium Bichromate —			
Canada, 3 t. 1 c.	£105		
Rouen, 5	1¾	166	
Spain, 8	5¾	269	
Sodium Iodide —			
Rotterdam, 4 cks.	£440		
Sodium Phosphate —			
New York, 11 t.	£120		
Sodium Sulphate —			
Canada, 8 t. 4 c.	£25		
Superphosphate —			
Stettin, 1,051 t.	£4,300		
Tallow —			
Rotterdam, 5 t. 18 c.	£190		
Varnish —			
Bergen, 2 brls.	£3		
White Lead —			
Malta, 2 t. 18¾ c.	£37		
Italy, 1	11¾	£22. 16s.	

TYNE.

Week ending September 1st.

Alkali —			
Amsterdam, 5 t. 5 c.			
Christiania, 6	6		
Odense, 7	6		
Rotterdam, 10	12		
Gothenburg, 9	1		
Ammonia Alkali —			
Odense, 10 t.			
Antimony —			
Montreal, 2 t.			
Copenhagen, 1	6 c.		
New York, 22	10		
Rotterdam, 2			
Arsenic —			
Montreal, 13 t. 18 c.			
Antwerp, 5	4		
Barytes Carbonate —			
Hamburg, 104 t. 4 c.			
New York, 21	15		
St. Petersburg, 145	4		
Blanc Fixe —			
Copenhagen, 4 t. 1 c.			
Bleaching Powder —			
Montreal, 5 t. 18 c.			
Amsterdam, 44	5		
Antwerp, 30	19		
Hamburg, 15			
Odense, 12	3		
Rotterdam, 16	17		

Leghorn, 29	13		
Drontheim, 9	19		
Gothenburg, 10	4		
St. Petersburg, 407	6		
Caustic Soda —			
Montreal, 8 t. 14 c.			
Amsterdam, 17	8		
Antwerp, 1	3		
Malta, 4	18		
Odessa, 16	18		
Hamburg, 2	18		
Christiania, 3	18		
Copenhagen, 2	18		
New York, 29			
Rotterdam, 2	16		
Leghorn, 5	4		
Drontheim, 2	18		
Gothenburg, 4	18		
Litharge —			
Montreal, 23 t. 11 c.			
Amsterdam, 1	3		
Magnesia —			
Antwerp, 1 c.			
Odessa, 1			
Hamburg, 4			
Ochre —			
Christiania, 3 t. 3 c.			
Oxalic Acid —			
Lisbon, 1 t. 2 c.			
Paint —			
Amsterdam, 5 c.			
New York, 4 t. 13			
Rotterdam, 6			
Ergasteria, 8			
Slag —			
Rotterdam, 1,004 t.			
Soda —			
Montreal, 45 t.			
Hamburg, 7	7 c.		
Christiania, 11	7		
Randers, 17	4		
Copenhagen, 6	9		
Leghorn, 9	13		
Drontheim, 15	4		
Christiansund, 5	4		
Gothenburg, 10	15		
Soda Ash —			
Odessa, 10 t. 2 c.			
Gothenburg, 160	19		
Sodium Hyposulphite —			
Antwerp, 2 t. 6 c.			
Sodium Silicate —			
Malta, 5 t. 4 c.			
Leghorn, 2	16		
Sulphur —			
Christiania, 30 t.			
Gothenburg, 92			
Superphosphate —			
Stettin, 515 t.			
White Lead —			
Montreal, 55 t. 17 c.			
Arendal, 16			
Stavanger, 1	9		
Copenhagen, 2	2		

GOOLE.

Week ending August 29th.

Coal Products (otherwise undes.) —			
Antwerp, 13 cks.			
Beulogne, 2 dms.			
Ghent, 2			
Rotterdam, 50			
Creosote —			
Kuysna, 1,700 cks.			
Dyestuffs (otherwise undescribed)			
Hamburg, 57 cks.			
Manure —			
Dunkirk, 45 bgs.			
Pitch —			
Antwerp, 114 t.			

GRIMSBY.

Week ending September 1st.

Chemicals (otherwise undescribed)	
Hamburg,	2 cs 3 cks.
Coal Products (otherwise undes.)—	
Dieppe,	1 cs. 125 cks.
Dyestuffs (otherwise undescribed)	
Dieppe,	2 cks.
Manure —	
Esbjerg,	302 t.

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CURRENT TOPICS.

SHIPPING POTASSIUM CHLORATE TO JAPAN.

ACCORDING to recent advice, the Chinese have elected to treat chlorate of potash as contraband of war. There is certainly good precedent for their so doing in the action taken by this country in 1855.

Up to now Shanghai is the only port at which the Customs officials have seized any consignments of this article, so that possibly the instance of which we have advice may prove to be an isolated one, arising out of the officiousness of some over-zealous official who has been burning to distinguish himself.

If such be the case the simplest way out of any further difficulty will be to send chlorate by vessels which do not call at Shanghai. This point will possibly be proven in the near future, as there is a good deal of chlorate *en voyage*. Should this also be seized by the Chinese, the position will present serious difficulties for both exporter and consignee.

There are certain other circumstances, however, which may possibly have a good deal to do with the behaviour of the Shanghai officials in this matter. Owing to the differences between Japan and China considerable stocks of chlorate of potash have been accumulating in Japan, where a very large quantity of this article is consumed in the match-making industry, so extensively prosecuted in that country. In consequence certain busy Japanese speculators, who deal in chlorate, have been circulating rumours among the Chinese that the large quantities of chlorate sent to Japan are being used for the manufacture of explosives and similar warlike commodities. In this way they evidently hope to cut off the supplies of chlorate, and form a "corner." So far, their efforts have apparently been attended with success, but when consideration is given to the magnitude of the trade in potassium chlorate with Japan, and the improbability of its use for the manufacture of explosives, their success should be short lived.

HIGH VERSUS LOW-FLASH OIL: A PROPOSAL.

Exception has been taken recently by those who favour a low-flash oil to the value of the accidents which occur with low-flash oil as arguments against the use of such oil. This is not very surprising, as on the score of accidents the low flash partisans have much the worst end of the stick. The total of their list of accidents occurring with high-flash oil is confined to units, while the accidents with low-flash oil reach up to hundreds of units. In our columns this week record will be found of five recent accidents. Two of these were due to lamp explosions, resulting in the loss of four lives, and a third arising from a similar cause was, fortunately, not fatal. The most serious of these three occurred at Salford. The circumstances, briefly stated, were as follows:—A lamp, with a glass reservoir, was charged at night with a quart of oil, and left burning upstairs all night. About one o'clock the lamp

exploded, and set fire to a bed on which three children were sleeping. The three children have since died from the burns they suffered, and the father is badly, but not fatally, burnt. The oil used was a well-known and widely used brand of low-flash oil, which, in testing, shows a flash point only a fraction above the Government limit of 73° F.

Now, accidents of this nature keep on occurring with lamentable regularity, but their value is discounted by the fact that there is no comparative test to show how a high-flash oil would have behaved. Scientific experiment leaves room for little or no doubt that such oil would prove less dangerous than a low-flash oil; but seemingly science is beyond the advocates of a low-flash oil, so that nothing short of a popular demonstration will suffice to prove the relative merits of the two oils. Instead, therefore, of setting an official with preconceived notions as to the infallibility of safety (?) lamps and low-flash oil, to ascertain by experiment whether such lamps are safe under all conditions, would it not be better for the London County Council—blessed with inspectors and money—to institute a comparative test of high and low-flash oils somewhat after the following fashion? Let a given area of a thickly populated and poor district of London be supplied for say twelve months with equal quantities of 73° and 100° flash oil. The County Council inspectors could easily then, with the aid of the Fire Brigade officials, follow up each fire and fatality, and ascertain the oil which was being used and other desirable particulars. We should then have a list of comparable accidents and the oil they resulted from. Such a trial would not be very costly, but of great assistance in establishing the *bona fides* of the really safer oil.

It would be absolutely necessary, however, that the distribution of the oil should be carried on unknown to either party concerned, so that there could be no getting behind the officers of the County Council, as the possibility of so doing would be a great temptation to the foreign producers, seeing how much they have at stake. This, again, could be easily accomplished. Most of the small dealers who supply the poorer districts are visited weekly by tank waggons. These could, unknown to the wholesale or retail vendor, supply low and high flash oil on alternate weeks. Such is the crude idea. Developed, it seems capable of forming a feasible and fair means of ascertaining whether the high flash movement is merely an agitation by interested parties in favour of the home oil industry, or an honest and honourable effort to increase the public safety, and spare the pockets of the public from being preyed upon for the benefit of the limited few, constituting a syndicated body.

HOW WALTHAM ABBEY EXPLOSIONS OCCUR.

Explosions at powder factories are natural consequences in a sense, but the rapidity with which they seem to occur at Waltham Abbey has led to an inquiry. The recommendations of the committee which investigated the last explosion are somewhat remarkable, not intrinsically, but on account of its being possible for a committee to advance such obvious advice. It is suggested as desirable that an experienced chemist should give his constant services and have *responsible* control over the manufacturing operations. There is nothing marvellously striking in this pronouncement. The marvel rather is that the War Office, blessed as it is with such renowned and able scientific advisers, should have left it to a committee to instruct them how to conduct an explosives factory.

The same committee further think that the system of *supervision and manufacture* calls for modification and im-

provement. They were, however, unable to discover the precise cause of the explosion they were investigating.

They certainly have good cause to think there is room for improvement in the system of supervision. Instance the following. Some gravel has been found mixed with the nitro-glycerine and gun cotton used in the cordite factory. Had the gravel not been discovered, in another minute it would have reached the kneading knives, resulting undoubtedly in the premature removal of that part of the works and its occupants, not to mention those who would have been battered with the scattered *débris*. Such an escape from a most disastrous accident is all but miraculous. Naturally the question, how the gravel got into the highly explosive mixture being kneaded, presents itself. The answer to which question is, that it has been clearly proved that the gravel was placed in such a dangerous position through the carelessness of some boys working the night shift. After this, perhaps it will not be so difficult to understand how these inexplicable and unfathomable explosions do occur. When such culpable laxity is known to prevail, explanation is almost needless, as the event merely fulfils the expected.

THE PROPOSED TIN SYNDICATE.

IN spite of the ignominious failure of the syndicate which engineered the "corner" in tin during the years 1887-8, when the price was manoeuvred up to £170. per ton, and the complete collapse of the Société des Métaux a few months later, brought about by their unfortunate speculation in copper, another combination of French and Dutch speculators is now endeavouring to obtain control of the tin market. Already, it is asserted, in some quarters, that they hold about 16,000 tons, but as this represents almost the whole of the European supply, which at the end of August amounted to 16,962 tons, such figures are not credited, the quantity being thought to be nearer 12,000 tons. The low price to which the metal had fallen (£65. 17s. 6d. being touched in July) seems to have been the main inducement for the syndicate's embarkation in the speculation. The prospect of a revival in trade, with the expectation of a large expansion in consumption, was also a strong attraction, it being known that stocks in America had fallen to a very low level, being considerably under 1,000 tons, as compared with nearly 10,000 tons little more than a year previous, when the increased duty under the McKinley tariff came into force. But the manipulators of the present "rig" seem to have quite lost sight of the fact that, though stocks in America had been so depleted, those in Europe during the past twelve months had gone on steadily growing, and that the visible supply, far from showing any diminution, had increased from 14,817 tons at the end of July last year to 20,487 tons at which it stood on August 31, and that, though the price was low, it was quite justified by the statistical position. Under the influence of their purchases, however, the value of the metal has been raised about £6. per ton, which roundly represents an appreciation in the metal in sight of some £120,000., and there is no doubt that if they could get out of their holdings at the present price, they would make a nice little "scoop"; but the difficulty is to find buyers. Whatever the trade may do, so far there has been little inducement for them to buy tin, no appreciable improvement in the demand for tinplates having yet occurred, and, as they are not likely to find willing purchasers for their holdings among the wily group who assemble in the Metal Exchange, they are at present in possession of something which very much resembles a white elephant. It may be argued that stocks in the United States are so low that Americans will be bound to come on the market as soon as their wants increase, but, the Harney Peak fiasco notwithstanding, it is doubtful whether they could not supply all their needs without buying a single ton from Europe. Though tin mining in Australia shows little or no development, the shipments having rather diminished than expanded during the past five years, there is no doubt that it is a growing industry in the Dutch East Indies and the Straits Settlements. Production there has steadily increased, and the shipments for the twelve months ended August last to Europe and America were 44,118 tons against only 27,557 tons for the year ended August 31, 1890. Thus supplies from this quarter within the short space of five years have increased by about 60 per cent., and are capable of being further extended should demands arise. It is almost certain, therefore, that America can supply her requirements direct from the Chinese merchants, who are only too glad to find purchasers at the present level of prices, which represent to them very handsome

profits at the current rate of exchange. If they were able to work the mines profitably some 15 years ago with silver over 50d. per ounce, and tin selling below its present level, it is very evident that, with silver at under 30d. per ounce and improved methods of mining, they are able to produce profitably now. If the syndicate, therefore, is ambitious to "corner" the market, there is nothing left for it to do but to acquire the production of the East Indian Mines, and in this way they may for a time be able to make the consumers pay the piper, but, as with other syndicates, a day of reckoning will surely come. They will find that their burden month by month gets heavier and heavier, even in spite of a trade revival, as consumers always find a way of economising their supplies when prices are high, and, with business in a healthier state than at present, rates of discount will become onerous, and the distended bubble will at last burst.—*Times*.

THE ANALYSIS OF REFINED COPPER.

AN interesting paper has been read recently before the Chemical Section of the Franklin Institute by Mr. H. F. Keller, in which he states:—it is generally conceded that the presence even of minute quantities of other elements in metallic copper has a marked influence upon its physical properties, and especially upon its electric conductivity.

The copper produced in the Lake Superior region is relatively free from injurious admixtures, and is therefore generally preferred when a high conductivity is desired. "Lake" copper is always quoted a trifle higher than the metal from other localities.

Of late years the production of copper from impure sulphide ores has grown enormously, and, at the same time, the quality of the product has steadily improved. It has, indeed, become possible through the introduction of the Manhés converter and the electrolytic process of refining, to obtain from matte a metal nearly, if not quite, as pure as the native of Lake Superior. Unfortunately, it appears that the very slight traces of the impurities retained in it affect the conductivity to a greater extent than is the case in the best Lake copper. Silver and iron are the chief impurities of the latter, while electrolytic copper not infrequently contains small quantities of bismuth, antimony, arsenic, selenium, and tellurium.

Why the exact manner in which these elements affect the physical properties of copper is not better understood is undoubtedly owing to the lack of rapid, and at the same time accurate, methods of ascertaining their relative amounts. It is astonishing to note that the works on quantitative analysis published in the English language entirely neglect copper analysis. To my knowledge, the important contributions to this subject by Hampe, Fresenius, and other German chemists have not been translated.

For several years past, I have given considerable attention to this subject. My analyses include the metal from the Lake mines, as well as copper obtained from Western mattes.

To the former, I found Hampe's original method of analysis well adapted. This consists essentially in precipitating, by electrolysis, the greater part of the copper, and separating the metallic impurities in the usual manner from the remaining solution. The non-metallic elements, such as oxygen and sulphur, are determined in separate portions of the sample.

For obvious reasons it is not desirable to employ this method in analysing electrolytically refined copper. Accurate results can be obtained by following the plan proposed by Fresenius, but the separation of large quantities of copper by means of hydrogen sulphide, and the difficulty of accurately weighing bulky solutions, render this method very objectionable. A far more convenient process is the one recently published by Professor Hampe. It is also more rapid than either of the two methods mentioned, and, with some modifications, it is especially well adapted for the analysis of most of the American refined coppers.

The process depends upon the removal of most of the copper as cuprous sulphocyanate.

The manner in which I practise it is, briefly, as follows:—

25 grams of material are placed in a tall, lipless beaker and treated with a mixture of 200 cubic centimeters of water, 45 to 46 cubic centimeters of nitric acid (specific gravity 1.21), and 25 cubic centimeters of concentrated sulphuric acid (in cases where much antimony or bismuth is present, as much as 100 cubic centimeters of H_2SO_4 may be taken). The beaker is covered and heat applied until nitrous fumes are no longer given off, and the solution then diluted with 200 cubic centimeters of water to prevent the separation of copper sulphate. A rapid current of sulphur dioxide is now conducted into the liquid, the temperature of which is maintained at about 40° C. When the nitric acid is destroyed and the red fumes have disappeared, the liquid becomes turbid, owing to the precipitation of silver, selenium, and tellurium. To insure the complete separation of the silver, a drop or two of hydrochloric acid may be added. After standing for twenty-four hours in a

warm place, the solution is poured through a small filter into a graduated flask of two litres capacity. It contains bismuth, antimony, arsenic, iron, also nickel and cobalt, if these are present in the sample.

The sediment retained by the filter is composed of gold, silver, silver chloride, selenium, tellurium, possibly also lead sulphate, and traces of bismuth and antimony.

To determine the elements in the filtrate, the greater part of the copper must first be removed. To this end a measured amount of standard potassium sulphocyanate solution (1 cc. = .05 gm. Cu) is gradually added, whilst a current of sulphur dioxide is passed into the liquid. An excess of the sulphocyanate should carefully be avoided; it is preferable to leave some of the copper in the solution which should now emit a perceptible odour of sulphur dioxide. The delivery tube is withdrawn and rinsed off into the flask, the contents of which are then made up to the mark. To effect a thorough mixing it is well to pour the contents into a dry beaker, and to re-transfer them several times from one vessel to the other. The precipitate is allowed to settle and an aliquot portion, say 1,800 cubic centimeters, of the solution filtered off. The separation and estimation of the different metals is effected according to the usual analytical methods. It is hardly necessary to state that the sulphur dioxide must be expelled before hydrogen sulphide is passed into the liquid.

In calculating the amounts of the metals contained in the entire liquid, we must allow for the volume occupied by the precipitate. According to Hampe, the specific gravity of the sulphocyanate is nearly 3, and since twenty-five grams of copper would give about forty-eight grams of this salt, the volume of the latter would be sixteen cubic centimeters. The actual volume of the solution, therefore, is 2,000 — 16 = 1,984 cc. Suppose, e.g., we had filtered off 1,800 cubic centimeters, and found in it .020 gram of arsenic, then

$$\frac{1984 \times .02}{1800}$$

would be the amount of arsenic in the sample taken.

There yet remains to describe the analysis of the insoluble portion from which the main solution was filtered. It may contain, as I have already said, gold, silver (both in the metallic state and as chloride), selenium, tellurium, lead sulphate, and traces of bismuth and antimony, occasionally also copper.

It is best to detach, as completely as possible, the dry mixture from the filter, and to destroy the latter with fuming nitric acid in a small porcelain casserole. The detached portion is then added, and treated with the nitric acid till completely oxidized. After evaporation on the water-bath of the free nitric acid, the residue is digested with dilute hydrochloric acid, which leaves the silver in the form of chloride. This is filtered off, purified, and determined in the usual way. From the filtrate, selenium and tellurium may be thrown down by means of hydroxylamine hydrochloride. In the cold this reagent seems to have little effect, but upon warming, a reddish turbidity is observed which gradually collects in the form of dark flakes. These represent all the selenium and tellurium; they are collected on a tared filter, and dried at 105°–110° C. to constant weight.

I have not been able to effect a clean separation of the two elements. Approximate estimations were made by fusing the mixture in a current of hydrogen with potassium cyanide; the aqueous solution of the fused mass was then exposed to the air, which caused most of the tellurium to separate.

Gold, lead, and the traces of antimony and bismuth are obtained by the ordinary methods.

COLLAPSE OF THE PETROLEUM CORNER.

IT is reported that negotiations have been in progress between the Standard Oil Company of America and the Russian producers with the view of forming a "corner" in petroleum which would command the world's markets. It would appear, however, that the independent attitude of the company led to the breaking off of the negotiations. The Russian Government appears to have been closely concerned, and as a result of the breach has "cut" freight rates 50 per cent. and reduced the export duty from 34 to 24 copecks per pood (*C.T.J.* 381, p. 143). According to the authority of the *New York Herald*, this move means that the Russians will sweep everything before them in the European markets. They can supply refined oil at two cents a gallon, and with transportation charges reduced they will have little or nothing to fear from the Standard Company's competition. It is stated that one of the Russian conditions was that the Standard should "wipe out" all American competitors, but that mainly through the strong attitude of German customers of a rival company, backed up by the Emperor William's personal objections to monopolies, they were unable to accomplish this, and so the scheme came to naught.

Official Memoranda.

THE NEW U.S.A. CUSTOMS TARIFF.

THE following is an abstract of the duties levied on chemicals, paints, oils, etc., under the new Tariff of the United States:—

Articles.	Rates of Duty.
Acids:	
Acetic or pyroligneous acid	Dols. cts.
Boric acid	20 % ad val.
Chromic acid	Per lb. 0 03
Citric acid	" 0 04
Tannic acid or tannin	25 % ad val.
Tartaric acid	Per lb. 0 60
Alumina, alum, alum cake, patent alum, sulphate of alumina, and aluminous cake, and alum in crystals or ground	25 % ad val.
Ammonia, carbonate of	Per lb. 0 00 ¹ / ₁₀
Muriate of, or sal ammoniac	20 % ad val.
Sulphate of	10 % ad val.
Borax, crude, or borate of soda	20 % ad val.
Borate of lime	Per lb. 0 02
Refined borax	" 0 01 ¹ / ₂
Chalk, prepared, precipitated, French, red, and all other chalk preparations not specially provided for in this Act	" 0 02
Coal-tar preparations:	
All coal-tar colours or dyes, by whatever name known, and not specially provided for in this Act	20 % ad val.
Cobalt, oxide of	25 % ad val.
Extracts and decoctions of logwood and other dyewoods, extract of sumac, and extracts of bark, such as are commonly used for dyeing or tanning, not specially provided for in this Act, and extracts of hemlock bark	Per lb. 0 25
Magnesia, carbonate of, medicinal	10 % ad val.
Do., calcined	Per lb. 0 03
Do., sulphate of, or Epsom salts	" 0 07
Alizarine assistant, or soluble oil, or oleate of soda, or Turkey red oil	" 0 00 ¹ / ₂
Castor oil	30 % ad val.
Baryta, sulphate of, or barytes, manufactured	Per gall. 0 35
Blues, such as Berlin, Prussian, Chinese, and all others, containing ferrocyanide of iron, dry or ground in or mixed with oil; and in pulp or mixed with water, on the material contained therein when dry	Per ton 3 00
Blanc-fixe, or artificial sulphate of barytes and satin white, or artificial sulphate of lime	Per lb. 0 06
Black made from bone, ivory, or vegetable, under whatever name known, including bone-black and lamp-black, dry or ground in oil or water	25 % ad val.
Chrome yellow, chrome green, and all other chromium colours in which lead and bichromate of potash or soda are component parts, dry or ground in or mixed with oil, or in pulp or mixed with water, on the material contained therein when dry	20 % ad val.
Ocher and ochery earths, sienna and sienna earths, umber and umber earths, ground in oil	Per lb. 0 03
Ultramarine blue, whether dry, in pulp, or mixed with water, and wash blue containing ultramarine	" 0 01 ¹ / ₄
Vermilion red, and other colours containing quicksilver, dry or ground in oil or water	" 0 03
Vermilion red, not containing quicksilver but made of lead or containing lead	20 % ad val.
Whiting and Paris white, dry	Per lb. 0 06
Zinc, oxide of, and white paint or pigment containing zinc, dry or ground in oil	" 0 00 ¹ / ₄
All other paints, colours, and pigments, whether dry or mixed, or ground in water or oil, or other solutions, including all colours in tubes, lakes, crayons, smalts, and frostings, and not specially provided for in this Act	" 0 01
Acetate of lead, white	25 % ad val.
Do., brown	Per lb. 0 02 ³ / ₄
Nitrate of lead	" 0 01 ¹ / ₄

Articles.	Rates of Duty.
Red lead	Dols. cts.
White lead, and white paint and pigment containing lead, dry or in pulp, or ground or mixed with oil	Per lb. 0 01 ¹ / ₂
Phosphorus	" 0 01 ¹ / ₂
Potash:	
Bichromate and chromate of	" 0 15
Nitrate of, or saltpetre, refined	25 % ad val.
Prussiate of, red, or yellow	Per lb. 0 00 ¹ / ₂
Paris green and London purple	25 % ad val.
Products or preparations known as alkalis, alkaloids, distilled oils, essential oils, expressed oils, rendered oils, and all combinations of the foregoing, and all chemical compounds, and salts not specially provided for in this Act	12 ¹ / ₂ % ad val.
Soap:	
Castile soap	25 % ad val.
Fancy, perfumed, and all descriptions of toilet and medicinal or medicated soap	Per lb. 0 00 ¹ / ₂
All other soaps, not specially provided for in this Act	35 % ad val.
Soda:	
Bicarbonate of soda or supercarbonate of soda or saleratus	10 % ad val.
Hydrate of, or caustic soda	Per lb. 0 00 ¹ / ₂
Bichromate and chromate of	" 0 00 ¹ / ₂
Sal soda, or soda crystals	25 % ad val.
Soda ash	Per lb. 0 00 ¹ / ₈
Silicate of soda, or other alkaline silicates	" 0 00 ¹ / ₈
Sulphur, refined, sublimed, or flowers of	" 0 00 ¹ / ₈
Sumac, ground	20 % ad val.
Tartar, cream of, and patent tartar	10 % ad val.
Tartrate of soda and potassa, or Rochelle salts	20 % ad val.
Magnesian fire-brick	Per lb. 0 02
China clay	Per ton 1 00

MORE ABOUT CANAIGRE.

Prof. Eitner, director of the experimental station for the leather industry in Vienna, has made numerous experiments with the newly-introduced American tanning material canaigre, and the information relative to its tanning qualities contained in this report is derived from his writings. Canaigre has the property of tanning leather in a short time, and of giving it a brighter, clearer orange colour than has been obtained by any other tanning material. (C.T.J. 36; p. 336.) The leather is soft, neither shrinks nor swells, and although rapidly dyed, is strong and not at all brittle.

Canaigre is especially adapted for the tanning of upper, saddlery, and fancy leather, but it has also been used with good results at the Levinische Fabrik, Trieste, in the tanning of sole leather, particularly sole leather for the finer kinds of ladies' shoes. In the treatment of leather for ladies' shoes, the canaigre is added to pine bark. It affects the leather first, and causes the pine to act more quickly and evenly than it would otherwise do.

In the process of the manufacture of sole leather canaigre is used to some extent.

In the Levinische Fabrik, in the final tanning process of skins which are to be used for sole leather, the skins are treated with a powerful mixture of extracts.

In the first bath, to which the skins are subjected for 16 days, 7 German lbs. of oak bark and 2 lbs. of canaigre or valonia are used. In the second bath, which lasts 24 days, there are 6 lbs. of oak bark and 3 lbs. of canaigre; and in the third, which lasts 30 days, 5 lbs. of oak bark and 3 lbs. of canaigre or valonia. Very strong skins sometimes receive a fourth bath.

In tanning with extracts, canaigre seems to have a special value in giving colour and strength. Even when used in small quantities, with other powerful extracts, there is a noticeable difference if canaigre is used instead of valonia, the leather having a brighter yellow colour.

Canaigre is better than any other material for retanning leather which has been imperfectly tanned.

Canaigre is very similar to gambier in its tanning properties, and it is ever to be exported in large quantities to Europe it will have, for the same amount of tanning power, to be as cheap or cheaper than the last-named article. It is for this reason that gambier has a particular importance for anyone interested in the sale of canaigre.

The firm of Blau and Schindler, of Hamburg, has imported more canaigre than any other continental firm, but, according to its own statement, has only imported it in small quantities, as it is not cheap enough at present to compete with gambier. Practically, the entire crop of gambier is shipped from India to England, and thence exported

to the other European countries and to the United States. Gambier proper sells in Vienna or Hamburg at 8 dols. per 100 kilos. (220'46 bls.) while cutch, or wood gambier, is cheaper.

A MEXICAN COTTONSEED OIL CO.

According to a recent report of the French Minister at Mexico, a company with a capital of 50 000 piastres, for the extraction of cotton oil, has been formed at Tlacotalpan, State of Veracruz. All the machinery required is of United States manufacture.

THE PRODUCTION OF OLIVE OIL IN SPAIN.

According to the average of the last five years the annual production of olive oils in Spain has been 2,976,384 quintals. The home consumption is distributed as follows:—Oils for purposes of food, 1,108,151 quintals; for factories engaged in the preserving industries, 53,713; for purposes of lighting, 467,200; for soap factories and other industries, 675,000; for oiling machinery, looms, ships, &c., 450,000; or a total of 2,754,064 quintals.

The annual exports amount to 222,320 quintals, distributed as follows amongst the countries of destination:—Spanish possessions, 63 486 quintals; France, 46,019 quintals; Portugal, 29,766 quintals; England, 17,126 quintals; Denmark, 16,893 quintals; Germany, 11,316 quintals; Asia and Africa, 15,529 quintals; America, 12,624 quintals; and other destinations, 9,561 quintals. Total, 223,320 quintals.

THE CHEMICAL INDUSTRY OF BERLIN.

THE following is an abstract of the report on the German chemical trade during 1893 prepared by the Berlin Chamber of Commerce. The report for the previous year will be found on Page 208, of issue 332, of this Journal.

During the year under review, the German chemical trade has suffered severely from the effects of the tariff war with Russia. Although this warfare has been brought to an end, Germany will still labour under the disadvantage of having to recover trade that has been temporarily diverted to other quarters. Another drawback has been the unsettled state of the Money Market in the United States, as well as the tendency to withhold orders till the promulgation of the new United States Tariff Bill.

Up to the present time little advantage seems to have accrued to German manufacturers from the Chicago Exhibition, and the general consensus of opinion seems to be that the results so far have not repaid the costs involved in representation.

Almost the only products which have sustained any appreciable advance in price are the ammonia compounds. Two causes are suggested for this improvement—a decrease in the English production of gas-water, and an increased consumption of sulphate of ammonia for agricultural purposes. The price of *ammonium sulphate* at the beginning of the year stood at 21m. to 22m per 100 kilo. This gradually advanced to 30m. per 100 kilo, and had only declined to 28m. by the end of the year.

Aqueous ammonia '910 sp. gr. advanced from 22m. to 35m per 100 kilo. *Ammonium carbonate*, unfortunately, did not share in the improvement to the same extent, and quotations did not rise above 62m. per 100 kilo.

Technically pure White *Salammoniac* suffered a decrease in price out of proportion to its value, and quotations sank to 40m. per 100 kilo.

The depressed condition of the *Potash* market has continued unchanged, 40m. per 100 kilo being quoted for 96 to 98%.

Oxalic Acid and *Oxalates* have been unable to advance beyond last year's prices, 60m. per 100 kilo being the average figure for the first-named.

Potassium Cyanide continued in good demand, but towards the end of the year the price declined somewhat, bringing the general average to about 140m. per 100 kilo.

For *Yellow Prussiate of Potash* the demand was so brisk that makers were emboldened to raise the price to 180-190m. per 100 kilo.

The figure realised for *Silicate of Soda* has declined still further, although the consumption of the article has remained the same. Tariff troubles have largely conduced to this result, and the trade with the United States has practically died out.

Soda Crystals, which began the year at 6m. per 100 kilo, were raised 50pf. in consequence of an understanding with foreign producers, but as *Soda Ash* declined somewhat in the autumn, the price of crystals again fell to the first-named figure.

Nitric Acid underwent little change, 23m. per 100 kilo being the quotation for the refined 36° article.

Sulphuric Acid, especially of the lower qualities, underwent a considerable improvement, mainly because the fall in silver had caused many of the metallurgical works to suspend operations, and in consequence the supply of the acid was curtailed. This position of affairs naturally caused a corresponding scarcity of *Hydrochloric Acid*.

Acetic Acid remained at the unremunerative values of the preceding year.

Wood Spirit enjoyed a brisk sale at a slight improvement upon last year's prices.

In the *Tar* trade, the various products remained in good demand, but sales were only effected at the cost of a continued decline in prices. There appears to be little hope for the success of the English movement to arrest this decline, as the yield from coke ovens is a continually increasing one.

The lowest *Benzol* price of the preceding year, 45m. per 100 kilo, was soon reached, nor did the price halt here, but sank further to 40m.

Xylol was in poor demand, and witnessed a decline in values, but on the other hand a brisk trade in *Toluol* sprang up, with a corresponding advance in price.

No particular change occurred in the *Anthracene* market, although large stocks were held in England, and a general disposition to withhold orders was exhibited by German consumers.

The demand for *Naphthaline* and *Phenol* continued good, but the decline in values was not arrested.

Cresol was well inquired for, and has realised its early promise on employment for disinfecting purposes.

Roofing Varnish and *Pitch* have found ready sales, but again at lower prices.

The prospects of the *Aniline Dye* industry in the beginning of the year were very favourable, but the silver troubles entirely changed the aspect of affairs. Two other causes are mentioned as contributing to the same result, the Tariff war with Russia (which seems to be held responsible for a good many German misfortunes), and the unsatisfactory state of the Swiss patent laws, which permit of a wholesale piracy of German patented inventions.

The trade in non-poisonous *Chemical and Mineral Colours* has been characterised by extreme dullness, and the prices of previous years have not been maintained. This is attributed largely to the Tariff troubles which were indicated in last year's report.

Varnishes and *Lacquers* have suffered from slackness in the building industry, and *Oil of Turpentine* having declined about 6m. per 100 kilo., is again at the lowest point that has been touched. On the other hand, *Lead compounds* have suffered little in value.

Makers of Pharmaceutical Chemicals who in anticipation of a return of the cholera epidemic had laid in considerable stocks, were heavy losers by the transaction, as no considerable demand was noticed in this direction. In consequence of the tariff difficulties, German Pharmaceutical Products are unable to find their way into Russia direct in anything like quantity, but as Russian buyers appreciate the German manufactures, these products have been handicapped by having to find their way to Russian consumers by more roundabout means.

An arrangement between the Stassfurt syndicate and the American producers has resulted in a greater steadiness in the *Bromine* market, and the price has risen 50pf. per 100 kilo.

The demand for *Chloral Hydrate* has declined somewhat, in consequence of the increasing reputation of other similar products, but makers have covered this by a mutual arrangement with regard to prices.

The trade in *Carbolic Acid* has not come up to anticipation. Early in the year prices stood at 6d. to 7d. for 34% to 35%, and 7d. to 8d. for 38% to 40%. Quotations rose in February to 7d. to 8d. and 8d. to 9d. respectively, but after that declined slowly to 5¼d. and 6d. to 7d. respectively.

Glycerine commenced the year in favourable demand, but the American crisis practically destroyed the trade with that country, and difficulties were experienced in inducing purchasers to take even their contract quantities.

The *Iodine* market has been in a disturbed state, owing to rumours of defection from the Iodine Convention. The effect of this has been to cause buyers, taught by previous experience, to withhold their orders.

Two new *Disinfectants* have made their appearance. "Formalin" is said to be an excellent disinfectant for houses and objects of all kinds, while for "Tri-cresol," that is a mixture of meta, ortho, and para-cresol, an equal efficiency is claimed for use in the treatment of wounds.

OWENS COLLEGE POPULAR LECTURES.—A series of popular lectures, open to the public without fee, will be again given in the Owens College during the next winter session. The opening lecture will be delivered on Monday evening, November 5th, by the Bishop of Peterborough.

Reports of Companies.

LEVER BROTHERS, LIMITED.

The statutory general meeting of Lever Bros., Ltd., was held recently at Cannon-street Hotel, E.C. Mr. W. H. Lever presided, and stated that their business had grown to such dimensions that it was quite impossible to carry it on any longer as a private partnership, and therefore they decided to turn the business into a Company. Since the Company had been floated he was happy to state that the business continued to increase. The dock which had been commenced, which would be 400 ft. long and 100 ft. wide, would be finished next year, and would be of very great advantage to the Company. In the soap business cheap carriage was everything, and the new dock would be a most valuable adjunct to the works; and a very important factor in the matter of cheap carriage; in fact, as far as this was concerned, he considered that the Company stood in a perfectly unique and unparalleled position. The additions to the works which had been entered upon and the entire business of the Company were going on in a most satisfactory manner. The only matter criticised in connection with the floating of the undertaking was with respect to the goodwill. There were various methods of calculating the value of a business or an article. Some people said an article was worth what it would fetch, while others said it was worth what it would cost to duplicate, and whether those theories, or others like them, were correct or not, he thought that when a combination of the theories was obtained the matter might be considered to be satisfactorily settled. The goodwill of the business of Messrs. Lever Brothers had been put down at the figure which it had cost to produce it, at a figure less than the business would fetch, and at a figure much less than that business could be duplicated for. He had the most confident belief that while the Company kept good faith with the public in regard to the quality of the article supplied the success of the large business which the Company had become possessed of would be quite as great in the future as it had been in the past, and the efforts of the directors would be to make the business more solid and substantial every day.—No questions were asked, and the proceedings terminated in the usual manner.

PRICE'S PATENT CANDLE COMPANY, LIMITED.

The directors of this Company announce that the balance of profit in hand shown by the accounts laid before the general meeting in March was £53,936., from which has been deducted for dividend of 15s. per share, reserve fund and depreciation on fixed properties a total of £45,625., leaving a balance of £8,311. The manufacturing profit of the six months to 30th June last was, less income-tax, £25,301., making together £33,612. Deducting the dividend to be declared at the meeting of 10s. per share, there remains to be carried forward a balance of £14,862.

BOLCKOW VAUGHAN AND COMPANY, LIMITED.

The report of this Company states that the results of the half-year to June 30th are fairly satisfactory. They do not recommend an interim dividend, preferring to wait until the results of the full year's working are known. The Board followed a similar course in September of last year.

ANSWERS TO CORRESPONDENTS.

- D. Bros.—Up to 383 of September 22nd.
 A. C. B.—It has been stopped.
 J. T. & Co.—Weekly, 12s 6d., post free
 M. H. F.—In the course of a few days.
 W. R.—A remittance will be made in a day or so.
 F. M. L.—We do not know. It is highly probable that any figure you might obtain would be worthless.
 E. F. H.—Thanks for numbers duly received.
 GAS.—Why not try it yourself? It would be a very simple matter.

THE ARMINIUS CHEMICAL CO.—This company is now actively working the Arminius pyrites deposits which they own in the U.S.A. A new body of pyrites has been found in the 620 level north, 100 ft. from the No. 3 shaft, and the main shaft will be sunk to a depth of 750 feet, to get under this. Mr. W. H. Case, has accepted the position of superintendent at the Arminius, and will at once put into practice methods for winning the large deposits of pyrites next the surface of the main body. Mr. W. H. Adams is the general manager of this mine, and will shortly begin the erection of a metallurgical plant to enlarge the scope of the business of the new company, which, for the coming year, promises to be the largest in the history of the property.

MANAGEMENT OF FARM MANURE IN SOUTH INDIA.

THE manure obtained from his cattle is almost everywhere the chief standby of the farmer for manuring his land.

It is only by manuring his land well and tilling it properly that the farmer can hope to secure good crops from it; and how greatly his success in this respect depends upon manure is a matter of common experience. With sufficient manure and abundance of water, there is scarcely any limit to the productiveness of the land in India. Manure and water are in this respect interdependent; the supply of water being that obtained in the falling rain or from irrigation works or wells. The matter at present to be considered is, however, the manure supply.

Unfortunately the amount of manure which the ryot finds at his disposal is usually but small. It is often also of but poor quality. Owing to want of proper care of the supplies available and to bad management, the stores of manure are generally small. Similar reasons explain the low quality of the manure.

In some places where wood fuel is scarce and near large towns, a very large proportion of the cattle dung is made into cakes and used for fuel; only a little ashes remaining for use as manure, and even these, in cases where the cakes are sold into towns, being lost to the ryot. When his cattle dung is burnt by the ryot himself, the ashes are generally thrown into a heap in the open, where they become leached of much of their valuable matters. That the practice of burning cattle dung is a cause of great loss is known to every one. By using the dung of his cattle for fuel, the ryot makes only a very petty saving in expenditure, whilst he could by growing fences round his fields, as is done in parts of Coimbatore and Salem, or by setting apart a small portion of his fields on which to grow trees for fuel, easily provide himself with fuel sufficient for his wants. By such means the very wasteful practice of burning cattle dung may be avoided. Near large towns, the price of fuel is so high as to render the growth of fuel trees generally a profitable undertaking.

The more general practice of the ryot is, however, to accumulate the dung of his cattle in a loose heap in the open air. The dung there dries into hard lumps, and is thoroughly washed by any rain that falls. It suffers loss in every possible way, and the ultimate result is a small heap of very poor, almost valueless, stuff left to be carted to the fields. With the dung is to be seen a certain amount of straw and leaves. Each material is left to itself, the dung to lose its value, the stalks to become hard and desiccated. Because in India no litter is supplied to the cattle, not once in a thousand times is any attempt made to save the urine of the cattle when they are kept in the houses or sheds of their owners. Wasteful this process is, because the solid manure is exposed as described. Still more wasteful and injurious is it, because the liquid manure is not only not preserved, but is allowed to sink into the ground, and especially into the hollows made by the feet of the cattle. The soil on which the cattle stand is saturated below by the urine, and the air of the house or shed becomes foul and contaminated. Every one has noticed the strong and peculiar odour found in these sheds in the morning. This is due mainly to the evaporation of valuable matters contained in the urine which drops on the floor and is lost.

The value of the urine of his cattle as manure is not, it is to be feared, appreciated fully by the ryot, even if the value thereof is not totally unknown. The urine, as a matter of fact, is richer in fertilising matters than the solid excreta of cattle, and the loss involved in letting the urine go to waste is very large. This loss may be avoided by the use of litter to absorb the urine, or even by sprinkling the floors of the cattle-sheds with dry earth, if litter be unobtainable. By the latter process, much of the urine could be saved; the earth being allowed to accumulate in the sheds till required for use as manure, or being removed as soon as it becomes saturated, and carefully preserved in a manure pit as is described below. In cases where cattle are tethered or penned in the fields, the urine soaking into the land is not lost.

If the ryot be asked why he does not use litter for his stock, he usually says that he has not enough fodder to feed them properly, still less has he straw for use as litter. The appearance of so much waste straw, etc., in the manure heaps is, however, often evidence that this is not the reason, for these matters, as well as coarse grass, weeds, leaves, and rubbish of all sorts might be used as litter, and the quantity required, especially if dry earth be also sprinkled over the floors, is not large.

As has already been said, the most valuable portion of farm manure consists of the urine of the cattle. The manure comprises also, when properly made, the whole of the solid dung as well as the litter used for bedding the cattle. As it consists of litter and the voidings of animals fed on the produce of the soil, it forms in itself a complete fertiliser. In the making of good manure, it is of importance that all these matters should be thoroughly and intimately mixed and that they should be preserved carefully after they have been collected; so that

the whole mass may ferment and decompose slowly and thoroughly. The value of farm manure lies probably as much in the mechanical effect it has on the soil to which it is applied as on the fertilising matters it contains. The mechanical effect depends greatly, if not chiefly, on the state of decomposition in which the manure is when applied to the land.

An excellent method of managing farm-manure suited to the conditions of the ryot is described below. In this method the dung and the urine are not removed from the shed except at intervals of several months, when the manure is required. The litter used absorbs the urine.

The floor of the cattle-shed should be made two or three feet lower than the surrounding ground, and the sides and the bottom of the pit plastered with clay. On the floor a layer of ashes should then be spread once for all, and every day a layer of vegetable rubbish should be spread over the surface as litter, that is, for bedding. For this purpose leaves, coarse grass and other vegetable rubbish may be collected and stored during those parts of the year when they can be easily procured, and when the ryot and his cattle have plenty of leisure. Waste fodder and various refuse portions of crops, such as the earheads from which corn has been threshed, etc., may be used as bedding. The shed may be ten feet long and six feet broad for a pair of cattle. It is best that the cattle should be left loose in the shed so that they may tread on every part of the manure and press it down. If the manure is not pressed, it will rot too fast and become much heated and give off bad smells and the health of the cattle will be injured. Every morning the dung dropped by the cattle in the previous night should be evenly distributed and a thin layer of litter spread over it. In this manner the manure may be collected until the pit is filled, which may take about three months.

Too much bedding should not be supplied; otherwise the manure will be too dry and not decompose with sufficient slowness, and thus lose in value. The manure in the pit should always be thoroughly moist throughout its bulk. If the manure has an ash-coloured appearance anywhere when it is being removed that is a sign that it has not decayed properly; this appearance being due to the great heat caused by the manure being too dry. If the straw, &c., supplied as bedding be long and hard, the manure will not rot properly; such litter should be cut up into short pieces. Unless the manure is well rotted, it will not be of much use to crops, as it will not act quickly. It will also make the soil too open, so that the crops thereon may suffer much from draught. The manure, if properly managed, will be of a black colour and of mellow substance, thoroughly rotted throughout, so that it may almost be cut with a knife. In removing manure from the pit the unrotted portion near the surface should be placed on one side, and after the well-rotted portion has been taken out, should be put back again at the bottom of the pit, and manure may be collected again as before. By this method of managing manure, about five to seven tons of good manure may be obtained yearly for each head of cattle kept, whereas if the dung be thrown out in loose heaps in the open air, only about half a ton of very inferior manure will be obtained in the year. The only objections raised to the system are:

(1) That it is supposed to cause unhealthiness amongst the cattle housed.

(2) That it requires a large amount of litter to be supplied.

In reference to the last, it may be noted that in some parts of South Canara the ryots take great pains to collect leaves and grass, and supply bedding to their cattle; but they remove the manure at intervals of a few days, and throw it out in a hollow place where it can be compressed by the carts travelling to and fro over it. In reference to the first objection, experience has shown that it is groundless.

If, for any reason, it is inconvenient to a ryot to collect manure in the above-mentioned manner, the following method may be adopted:—

The floor of the cattle-shed should be made smooth and compact, with a gentle slope towards the back, where a small channel should be placed so that all the urine falling on the floor may be carried by the channel to a pot placed outside the shed at one end. The dung can be removed every day and thrown into a pit, the sides and bottom of which should be plastered with clay, and over which a low thatched roof has been erected. Whatever vegetable refuse is available on the farm may be thrown into the pit, and the urine collected poured over the heap daily. The whole mass of dung, urine, and vegetable rubbish should be kept uniformly mixed and well trodden and pressed down so as to make the mass decay uniformly and slowly.

If the manure pit last described cannot be protected by a simple shed, the heap should be covered with earth. It has in all cases been found very useful to cover manure heaps with earth, as this prevents the loss of valuable fertilising matters into the air. This practice is fully adopted in some places, e.g., in Tinnevely, with the best results. If the upper portions of a manure heap become dry, the heap should be turned over so as to mix the moisture and the drier portions together, and if there be any tendency for the heap to dry up generally, it may be watered slightly with advantage. The covering of the heaps with earth to a great extent prevents undue drying. The great aim

should be to maintain the heap in a moist state, so that the whole mass may decay slowly and completely, and thus the fertilising matters of the manure may be preserved and rendered more immediately useful than as they are found naturally. A reading of Prof. Aikman's monograph on "Farmyard Manure," in addition to the foregoing, is strongly to be recommended for agriculturists in the southern quarter of India.

IMPORTS AND EXPORTS FOR AUGUST.

THE Board of Trade Returns for the past month are not very encouraging, save that the falling off is, if anything, rather smaller than last month. The imports of chemicals show a decrease, but oils have increased. The exports of alkali show a marked decrease.

IMPORTS OF FOREIGN AND COLONIAL MERCHANDISE

ARTICLES.	Quantities.	
	1893.	1894.
Margarine	Cwt. 102,382	88,221
Copper Ore and Regulus	Tons. 14,803	13,204
Hides, dry and wet	Cwt. 90,085	107,449
Nitrate of Soda	Tons. 10,498	3,208
Tallow and Stearine	Cwt. 156,381	187,776
Tin	" 45,395	73,105

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 447,034	389,574
Cement	Tons. 36,948	38,526
Coal and Coke	" 2,368,968	2,950,258
Copper, all kinds	Cwt. 83,730	93,981
Iron and Steel	Tons. 281,832	240,977
Chemical Manures	" 48,505	49,162
Oils, seed	" 4,934	3,862
Salt	" 61,429	75,578

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending August 25th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'35	9'35	0'5	Nil.
South Metropolitan Gas Co.	6	16'63	9'83	0'58	Nil.
Commercial Gas Co. ..	2	16'2	8'05	0'3	Nil.

The supply for week ending Sept. 1st was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'38	9'43	0'36	Nil.
South Metropolitan Gas Co.	6	16'43	10'15	0'55	Nil.
Commercial Gas Co. ..	2	16'05	9'15	0'45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Trade Notes.

NITRATE DIVIDEND.—The San Jorge Nitrate Company, Limited, has declared an interim dividend of $7\frac{1}{2}$ per cent. on account of the profits for the half year ending 30th June.

A BIG POTASH BED.—According to recent advice a stratum of potash 73 metres (over 230 feet) in thickness has been discovered at a depth of 607 metres in the Duchy of Brunswick. This valuable find belongs to the State.

JAVA INDIGO.—Messrs. Bunge and Co., of Rotterdam, report that Java Indigo continues quiet at 6s. 11d. for superior, to 4s. 8d. to 5s. 5d. for ordinary. These prices are considered low seeing that the reports of the Bengal crop are not very favourable.

THE BUXTON LIME FIRMS CO.—The net profit of this company for six months to June 30th, after providing for debenture interest, is £6,037., which, with the balance of £1,914. brought forward, makes a total of £7,951. available for dividend. The directors will declare a dividend of $3\frac{1}{2}$ per cent per annum upon the share capital, and carry forward, £951.

THE UNIFICATION OF CHEMICAL APPARATUS.—At the recent meeting of the Congress of Applied Chemistry, the Congress adopted the French litre in preference to the German (Mohr's litre) as the standard for gauging purposes and for the graduation of chemical instruments. The Centigrade thermometer was adopted to the exclusion of those of Reaumur and Fahrenheit. It was decided that the next meeting of the Congress should be held in Paris in 1896.

THE VELVO-CARBON BATTERY.—Velvo-carbon, is a special class of negative electrode for electric batteries, consisting of ordinary carbon with a surface of carbonised cotton velvet. Batteries employing these carbons are both light and powerful, and may be used with a weak solution of sulphuric acid only as an excitant. The patent incorrodible connections are made of pure silver or platinum, and, owing to their form, are cheaper than the connections used hitherto both in first cost and in maintenance. It is claimed that velvo-carbon for electric launches possesses many advantages over the existing system.

THE MANCHESTER MUNICIPAL TECHNICAL SCHOOL.—The syllabus of the school for the coming session has been issued, and appears more complete than ever. Instruction is given in 42 technical subjects, in addition to the usual commercial Science and Art subjects. The syllabus is enlivened with page illustrations of some of the more important departments. Among the new features of the syllabus we find an honours class in applied mechanics and steam, a course of lectures on hygiene, and a special course in magnetism and electricity for telegraph employes. The syllabus is to be had from Mr. J. H. Reynolds the Secretary and Director for 4d., or 6d. post free.

TECHNICAL PUBLICATIONS IN THE PRESS.—Messrs. Whittaker will issue shortly a new and mostly re-written edition of Gisbert Kapps "Electric Transmission of Energy"; "Model Engine Construction," by J. Alexander, with working drawings; the third and fourth parts of C. Gordon Brodies "Dissections," illustrated. They will include respectively the head, neck and thorax, and the abdomen. "Steel Works' Analysis," by Professor J. C. Arnold, of Sheffield Technical School. "Steam Power and Mill Work," by G. W. Sutcliffe, M. Inst., C.E. and "The Manufacture of Modern Explosives," by Oscar Guthmann, A. M. Inst., C.E., F.I.C.

SUBSIDENCE AT A CHEMICAL WORKS.—On Friday last week, the 14th inst., a somewhat new feature in subsidence took place in the Cheshire salt field. It will be remembered that about $3\frac{1}{2}$ years ago, Messrs. Bowman Thompson and Co., Ltd., commenced operations at Lostock Gralam, near Northwich. After having purchased suitable land (about 150 acres in extent) they began the erection of their Ammonia Soda Works, and simultaneously to sink a 12-inch bore hole for the purpose of getting brine, which article they found in abundance. At certain periods, however, water by some means, percolated into this bore-hole, the consequence being that a certain amount of rock salt was periodically dissolved with the formation of a cavity below. This cavity first began to fill up from the superincumbent soil some 18 months ago, when the surface began to sink. Messrs. Bowman Thompson and Co., seeing the necessity of another supply, immediately put down two other bore-holes much larger than the first, and secured the desired end, viz., an abundant supply of full strength brine. On Friday last week, about 4-30 in the afternoon, five men were in the act of dismantling the engine and machinery of the brine pump in question, when a report was heard, and fifteen minutes afterwards a hole 30 feet diameter and 20 feet in depth was the result. Unlike all other subsidences in Cheshire, this hole is square down on all sides alike, and not on the slant as is usually the case. No inconvenience through lack of brine has been caused, as one of the present pumps is ample for Messrs. Bowman Thompson and Co.'s requirements. It is expected that in a few days the engine and machinery will be recovered and the cavity filled up.

FATALITY AT A PAPER MILL.—A shocking fatality occurred at the Head Wier Paper Mills last week. A man named Hutchings was attaching a belt to one of the engines, when he got entangled in the machinery. His right arm was pulled off above the elbow, and his skull fractured. He died a quarter of an hour after his admission to the hospital.

A FEW MORE PARAFFIN ACCIDENTS.—A fire attended with loss of life occurred on Saturday, the 8th inst., at 15, Maxey-road, Plumstead, S.E., on the premises of Mr. W. Welsh. Mrs. Welsh, 54 years of age, was carrying a mineral oil lamp along the ground-floor passage when either she dropped the lamp or it exploded. Her clothes took fire, and she was enveloped in flames. Assistance was promptly at hand, and the woman was rolled in rugs until the fire was extinguished, but she had sustained shocking injuries, and, being removed to a hospital, died there soon after admission. At Shanghai recently, some cases of petroleum caught fire in the ballast tank amidships of the steamer *Nierstein*, loading for Chefoo and Newchwang, but the tank being immediately filled with water, and there being only 500 cases in the tank, the damage to the cargo will not be extensive. Another fire broke out at Copenhagen, owing to the explosion of a petroleum lamp on board the Swedish steamer *Lily*, but it was extinguished by the crew before it had done much damage. In putting out the fire the two engineers got badly burnt, so that they had to be sent ashore and taken into the hospital.

THE NEW GOVERNMENT PAPER.—Speaking of this paper, the *London Commercial Record* says:—The appearance of the first number of the new official quarterly, the "Journal of the Board of Agriculture," was an event of some interest, but the publication, though new, can hardly be said to be novel. The number before us is certainly filled with useful reports and extracts from various sources, but nearly all of these were published months ago, and have been noticed more or less fully by the Press, as, for example, the opening article, which is a summary of a Report by the American Department of Agriculture on the cost of wheat growing in the United States. Other extracts or summaries, derived from Foreign Office and Parliamentary Reports, or from the bulletins of Foreign and Colonial Departments, are similarly useful as records for reference, but are not new. Even the section on "Crop Prospects Abroad," in connection with which the Board of Agriculture might be expected to enjoy advantages, conveys no fresh information, and, in some respects, has been superseded by later intelligence.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are steady. Benzol is rather dearer, and 1s. 2d. may be taken as value for 90's and 50/90's. Carbolic acid enjoys a fairly good demand, with a good market for crude: prices for crystals and crude, however, remain unchanged. Solvent naphtha is active at 1s. 4d., and crude is unaltered at $5\frac{3}{4}$ d. There is pretty well doing in creosote. Pitch is firm at good prices, 38s. to 40s. per ton, f.o.b. East Coast, now being quoted. Anthracene, 30% A, 1s. 2d.; 30% B, 10d.

Sulphate of ammonia keeps on the decline. The demand is poor, buyers evidently waiting for the pending increased production to still further lower prices. Forward contracts well into next year are reported at even money. Beckton value is £13. 10s., London outside makes £13. 8s. 9d., Liverpool £13. 2s. 6d., Hull £13. 2s. 6d., to £13. 5s., Leith £13. 5s. Nitrate quiet.

MISCELLANEOUS CHEMICAL MARKET.

Business in alkalis for export is fairly active, and the market generally is firmer in tone, though there are no actual advances to record. Caustic sodas keep steady at figures which have been ruling for some time past, and current spot quotations are as follows, viz.:—77%, £10. 15s. per ton; 70%, £8. 15s.; 60%, £7. 15s., f.o.b. Liverpool and Tyne. Ammonia alkali, 58%, £3. 10s. to £3. 12s. 6d., in casks, f.o.b., and £3. 2s. 6d., bags, for makers' works. Soda crystals, still suffering from excessive output, sell at £2. per ton, in bags at makers' works, and in some districts at lower price. Leblanc soda ash, 48%, is quoted nominally at £3. 15s. to £4. per ton, f.o.b., in casks. Bleaching powder is in good all round demand, £7. 10s. being the price at makers' works. Some forward business has been done slightly under this figure. Prices of chlorates continue to show a downward tendency. Sulphate of copper has improved in price, along with the firmness in the metal, but the heavy demand is over. Sulphur in all grades is selling at low rates. Nitrate of soda firmer for spot and forward at £9. to £9. 5s. per ton. Acetates of lime have improved in value to a further extent, but other acetates are meantime unaffected. White arsenic is scarce, and with a heavy demand for export prices are

higher at £14. 5s. per ton, Garston, etc. Potash salts are generally firm and in good demand, and prices of prussiate and cyanide of potassium are still firmly maintained. Muriate of ammonia and sal-ammoniac are in good request, and ammonia salts generally are readily disposed of at full market rates.

Generally there is a more healthy tone and better reports of business from many quarters.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been quiet, and prices remain very much as last quoted. Florida phosphate rock, 75/80%, is quoted 8½d. c.i.f. to Baltic ports, 8d. c.i.f. to Continent, and 7¾d. c.i.f. to United Kingdom, but buyers, having filled their requirements a good way ahead, do not seem anxious for further business, unless at a concession. The nearest value of South Carolina River rock is probably 6½d., in cargoes c.i.f. to United Kingdom, and of Peace River rock 6½d. per unit. There continues to be good inquiry for River Plate bones, and it is understood that further business has been done on private terms, £4. 12s. 6d. asked for handy cargoes, autumn shipment. Sales of Bombay have been made at £4. 16s. 3d., and of fine Kurrachee at £4. 17s. 6d., and these are the closing values. £4. 12s. 6d. accepted for crushed Kurrachee bones. Common grinding bones sell readily at £4. 7s. 6d. per ton, ex quay Liverpool. Nitrate of soda is quiet, but steady in all positions: on spot 9s. 1½d. per cwt. required for fine quality, and 9s. per cwt. for ordinary. Due cargoes are worth about 9s. per cwt., and later sailings 9s. 1½d. and 9s. 3d. per cwt., ordinary quality. More money required for refined.

There is nothing special to report in miscellaneous material.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The impression prevalent with regard to sulphate of ammonia at the time of last week's writing has been fully justified in the event, for within a day or two thereafter business to some inconsiderable extent was done at £13. 7s. 6d. prompt Leith, and with sellers over. At the close of the week it got on report that £13. 5s. had been taken, and it seems very probable that this took place; in fact, buyers are confident of further falls directly the strike of the miners is done with and the iron furnaces begin to get into blast again, so that all buyers that can possibly hold off now are doing so.

Reports as to chemicals generally remain still inconclusive, and even conflicting. There are hardly any price changes of a definite kind to record, but sulphate of copper and chlorate of potash are hinted at as inclining to the drop. Nitrate of soda is quoted lower.

The Scotch mining strike has been undergoing a process of wearing away, and the number of men at work again on the master's terms is increasing. Still, the revolt of the men is tenacious of a kind of life, and in certain quarters, Fife particularly, the men as yet present an obstinate attitude and refuse to surrender.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¾d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £13. 5s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4d. to 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., 885° £4. to £5., and 890/895° £4. to £5. 10s. Week's imports of sugar at Greenock were 13,118 bags, and 7,316 baskets—unrefined.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The demand all round has been well maintained; the import of Linseed has been 10,787 quarters, viz., 4,048 quarters from St. Petersburg, 1,500 from Riga, 60 quarters from Harlingen, and 3,565 quarters from River Plate, and from Rosario, *via* Antwerp, 1,614 quarters. The arrival of Cottonseed has been 2,884 tons from Alexandria; of Rapeseed there have been no imports. Linseed oil opened dull, but closes with a firmer tone. Spot buyers at 19s. 6d. naked, and same price paid for month oil, October-December realised

19s., and January-April quoted 18s. 9d. to 18s. 10½d.; double boiled, do., 20s. 3d.; pale boiled, 20s. 4½d.; casks, 17s. 6d.; and barrels, 22s. 6d. per ton extra. Export for the week has been 1,820 cwt. Refined cotton oil firm, at 18s. 9d. to 19s.; naked, spot; September-October, 18s. 9d.; and November-April, 17s. 9d.; crude, 17s., naked spot; edible cotton oil, 21s., in barrels. "Vegaline," a new perfectly white vegetable fat, is quoted at 30s. per cwt. in barrels, and 31s. 6d. packed in 1 cwt. casks. The export of cotton oil for the week was 2,480 cwt. Rape oil is well inquired for. Castor oil continues firmer. Turpentine unchanged. Cod oil remains inactive from £17. to £20. per ton. Sod oil unchanged, £16. to £21. per ton. Soft soap, 14s. 6d. per cwt. Boiled oil substitute, £12. per ton. Engine and cylinder oils, from 1s. to 2s. per gallon.

CAKES.—Orders for all kinds, slow. Prices, however, show no material change, being supported by a comparative temporary scarcity of spot seed. Linseed cakes: 95%, pure £6. 12s. 6d. to £6. 15s.; Russians, £6. 7s. 6d.; oilcakes, £5. 12s. 6d. to £5. 15s.; cotton cakes, best makes, £4. to £4. 2s. 6d.; seconds, £3. 17s. 6d. spot; for Nov.-March, £4. 2s. 6d. asked, but buyers bid less. Rape cakes: Black Sea, £3.; East India, £4.: feeding cakes, £4. 10s.

PAINTS.—The home demand is very limited, but some good orders are being executed for export. Dry colors: Venetian red, from £3. 17s. 6d. per ton; blue black, £4.; mineral black, £3. 15s.; yellow ochre, from £3. 15s. Ultramarines from 3d. to 8d. per lb. Black varnish, in barrels, £5. per ton; Paint remover, 30s. per cwt. Ready-mixed paints from £24. per ton. Oak varnish, 5s. 6d. per gallon.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 43s. 6½d., Middlesbrough 36s. 3d. cash, and hematite 44s. 6d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £41. 17s. 6d. to £42. 2s. 6d. cash, and £42. 5s. to £42. 10s. three months. Tin, steady: Straits closed at £73. 17s. 6d. to £74. 7s. 6d. cash, and £73. 17s. 6d. to £74. 7s. 6d. three months; Australian, £74.; English ingots, £76. Lead, quiet: Spanish, £9. 17s. 6d. to £9. 18s. 9d.; English, £9. 18s. 9d. to £10. Silesian Spelter, ordinary, £15. 10s. Nickel, 1s. 5d. Antimony, £33. Quicksilver: first hands, £6. 15s.; second hands, £6. 13s. 6d. Copper shares, steady: Cape, 1¼ to 1½; Copiapo, 2 to 2½; Libiola, 3¼ to 3½; Mason and Barry, 3 to 3½; Rio Tinto, 15½ to 16; Tharsis, 5½ to 5¾.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet, with an easier tendency: Lagos, spot and to arrive, has been sold at £22. 15s. Olive is in fairly good request at full prices. Linseed is firm at 21s. 9d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed has advanced in price: there is little offering, so that Liverpool refined is firm at 21s. 6d. to 21s. 9d. per cwt. Castor oil is steady, with good seconds Calcutta at 2½d. per lb., and first pressure French 2½d. per lb. Tallow is steady, and pretty well inquired for. Resin is rather quiet at 3s. 7½d. for common, medium 4s. to 6s., and fine 6s. 6d. to 8s. 9d. per cwt. Spirits of turpentine keep steady at the reduction, there being a moderately good inquiry at 21s. 9d. per cwt. Petroleum is in rather better demand at 4d. to 5¼d. for American, according to quality, and 3½d. to 3¾d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals continue fairly steady and shipments better than they have been for some little time. Prices are nominally unaltered. Bleach, £7. 5s. to £7. 10s.; 76/77% caustic firm, at £10. 10s. Soda crystals, £2. 1s. gross weight, locally.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of

soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt quiet at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Market to-day is rather quieter, though for best qualities "turns" are full for some time and prices firm. Best Northumbrian steam, 10s. 6d. to 11s. per ton; second quality, 9s. 6d. to 10s. per ton; small steam, firm, 5s. to 5s. 6d. per ton; gas coal, better, 7s. 3d. to 8s. per ton; bunker coal, 7s. to 7s. 6d. per ton; coke, steady, according to quality, 13s. 6d. to 15s. per ton.

New Companies.

Lucal, Limited.—CAPITAL £5,000. in £1. shares. This company has been formed to purchase patents for the utilisation of oil for heating and lighting purposes.

James Hilton and Co., Ltd.—CAPITAL £20,000. in shares of £1. each. This company has been formed to acquire, as a going concern, and carry on the business of white lead, paint, colour and varnish manufacturers, oil merchants, drysalts, etc., as hitherto carried on under the style of James Hilton and Co., at the Pendleton Paint and Colour Mills, Pendleton, Lancashire, and to adopt an agreement, made September 12th, 1894, between J. Hilton of the one part and this company of the other part.

Fish, Manure, and Oil Co., Ltd.—CAPITAL £20,000. in shares of £5. each. This company has been formed to acquire the business formerly carried on by the Grimsby Fish, Manure, and Oil Co., Ltd., and to trade as manure manufacturers, bone crushers, tallow chandlers, etc. The subscribers to the memorandum of association are:—H. R. Smyth, Adelaide House, Victoria Park, Manchester, manure manufacturer; C. Fell, 17, Victoria-road, Sale, manure manufacturer; C. Jeffs, junr., Morecambe Villa, Grimsby, fish merchant; J. L. Green, Sydney-terrace, Grimsby, fish merchant; P. Class, 326, Albert-terrace, Grimsby, fish merchant; C. T. Crowther, 11, Macaulay-terrace, Grimsby, secretary; F. J. Astbury, 34, Pall Mall, Manchester, accountant.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

- Improvements in Precipitating Tanks for Treating Sewage, etc. E. W. Ives. 16,724. September 3.
Purifying Raw Sugar with Sulphurous Anhydrides. C. M. La Fontaine. 16,759. September 3.
Improvements in Electrolytic Cells or Tanks. D. G. Fitz-Gerald. 16,775. September 3.
Manufacture of Filamentous Products from Cellulose. G. Jacober and A. Rabourdin. 16,785. September 3.
Automatically Extracting Moisture from Steam. W. Adams. 16,820. September 4.
Improvements in Stone Crushing Apparatus. W. P. Thompson. 16,852. September 4.
Improvements in Stone Crushing Apparatus. W. P. Thompson. 16,853. September 4.
Protecting Lead Piping, etc., from Corrosion by Water. J. A. Paskin and Wm. Ackroyd. 16,886. September 5.
Filtering Apparatus. P. E. Hodgkin. 16,914. September 5.
Manufacture of Briquette Fuel. A. E. Tavernier and W. L. Malcolmson. 16,978. September 6.
Smoke-Testing Apparatus. J. Jones. 17,002. September 6.
Manufacture of Yellow Basic Colouring Matter. O. Imray. 17,048. September 7.
Manufacture of Yellow Basic Dyestuffs. O. Imray. 17,049. September 7.
Making Red Oxide of Iron Pigments from Hydrated Peroxide of Iron. N. McCulloch. 17,113. September 8.
Manufacture of Lead Pigments. W. B. Priest. 17,145. September 8.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

- A. KAY, J. KAY, and R. KAY, calico printers, Salford and Prestwich, under the style of Robert Kay and Sons, so far as regards R. Kay.
W. E. HOPKIN and T. A. SAVIDGE, bone boilers and manufacturers of oils, size, tallow, grease and bone manures, Toton, Nottinghamshire, under the style of Hopkin and Savidge.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

DARBY, WALTER SCOT, Cardiff, oil and colourman.

Adjudication.

HEY, THOMAS PERCY, Thornton, near Bradford, late paper merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 8th.

Acetic Acid—
Holland, 50 pkgs. Philipps & Graves
Alkali—
Germany, 4 pkgs. L. & I. D. Jt. Co.
Alumina—
Holland, 32 pkgs. Greeff & Co.
Aluminium—
Belgium, 176 Major & Field
Ammonia—
Germany, 3 pkgs. A. Thumann & Co.
Antimony Ore—
Italy, 80 t. Novelli & Co.
Melbourne, 3 Vivian, Younger & Co.
Arsenic—
Germany, 50 pkgs. G. Boor & Co.
Asbestos—
France, £50 Mory & Co.
Barium Chloride—
Germany, 24 pkgs. Petri Brs.
Barytes—
Holland, 12 cks. Beresford & Co.
Belgium, 37 J. L. Lyon & Co.
64 pkgs. W. Harrison & Co.
Borax—
Holland, 4 pkgs. Philipps & Graves
Bromide of Iron—
Germany, 6 pkgs. A. & M. Zimmermann

Camphor—
Germany, 3 pkgs. L. & I. D. Jt. Co.
" 34 R. Warner & Co., Ltd.
" 1 cs. Philipps & Graves
Caoutchouc—
U. States, 36 c. H. Davies
France, 22 H. Johnson & Sons
" 7 Anderson, Weber & Smith
Madagascar, 110 Procter Brs.
" 477 L. & I. D. Jt. Co.
U. States, 20 " "
Rangoon, 246 " "
France, 25 " "
Zanzibar, 22 " "
E. Indies, 17 Lewis & Peat
" 19 A. Lawrie & Co.
Cape, 178 Kleinwort, Sons, & Co.
E. Turkey, 3 Girard & Co.
Mombasa, 5 Anderson, Weber & Smith
Carbolic Acid—
Holland, 654 pkgs. J. Owen
Carbonic Acid Gas—
Holland, 218 pkgs. Carbonic Acid Gas Co.
Castor Oil—
France, 20 brls. J. T. Morton
" 70 E. Hugo
" 25 cks. Maconochie Brs.
Italy, 14 pkgs. Beresford & Co.
France, 6 brls. " "
" 101 F. V. Smythe & Co.

" 26 53 cks. Lucas & Spencer's Wf., Ltd.
" 6 cks. G. Ward & Sons
Italy, 40 cs. Stebbing & Co.
" 25 G. S. N. Co.
E. Indies, 62 Anderson, Weber & Smith
" 106 cks Cayzer, Irvine & Co.
" 188 Ross & Deering
" 2 pkgs. L. & I. D. Jt. Co.
Caustic Potash—
Belgium, 63 c. Petri Brs.
France, 19 E. W. Carling & Co.
Holland, 99 J. M. Steel & Co.
Caustic Soda—
Belgium, 16 c. Beresford & Co.
Chemicals (otherwise undescrbed)
Holland, £10 T. H. Lee
Germany, 50 pkgs. L. & I. D. Jt. Co.
" £7 Hernu, Peron & Co.
" 94 pkgs. A. & M. Zimmermann
A. Turkey, 1 G. S. N. Co.
Germany, 1 J. Barber & Co.
Holland, 1 Philipps & Graves
" 1 J. Sauer
" 2 L. C. & D. Rly. Co.
Cream of Tartar—
Italy, 9 pkgs. Thames S. T. & L. Co., Ltd.
Spain, 4 B. & F. Wf. Co.
France, 4 " "
" 5 W. C. Bacon & Co.

" 4 Sbarland & Co.
" 20 Finlay & Co.
Italy, 22 Thames S. T. & L. Co.
" 9 Fellows, Morton & Co.
Dextrine—
Germany, 60 pkgs. H. Lorenz
" 50 Ohlenschlager Brs.
" 5 Herrmann, Keller & Co.
Dyestuffs—
Annatto
E. Indies, 14 pkgs. J. P. Alpe & Co.
Argols
Italy, 35 pkgs. Thames S. T. & L. Co., Ltd.
" 300 B. Jacob & Sons
Cochineal
Canaries, 3 pkgs. L. & I. D. Jt. Co.
" 28 Marshall & French
" 5 Kuhner, Henderson & Co.
Cutch
Rangoon, 1,000 pkgs. Leach & Co.
" 350 Brown & Elmslie
" 310 A. Howden & Co.
" 510 Huttenbach & Co.
" 353 Arracau Co., Ltd.
Extracts
U. States, 25 pkgs. W. Burton & Sons
Austria, 900 A. J. Humphrey
France, 40 B. & F. Wf. Co.
Belgium, 20 L. J. Levinstein & Sons
" 5 Leach & Co.
France, 88 McKellar, Carr & Co.
" 58 Prop. Chmbln. & Wf.

Austria, 200 Boucher, Mortimore & Co.	Phosphorus —	Belgium, 18 cks. Burrell & Co.	Mica —
Belgium, 100 T. H. Lee	U. States, 6 pkgs. W. G. Blagden	" 17 J. L. Lyon & Co.	New York, 10 brls. T. Robinson & Son
Denmark, 1 J. Sinclair & Son	Pitch —	" 17 Colthurst & Harding	Mineral —
Fustic 100 t. Churhill & Sim	N. Russia, 350 brls. Fellows, Morton & Co.	" 1,200 bgs. Union Lithg. Co., Ltd.	Vera Cruz, 1,490 bgs. Bessler, Waechter & Co.
Manzanilla, 13 t. Gambler	Plumbago —	Germany, 11 cks. Spies Bros. & Co.	Minium —
E. Indies, 107 pkgs. T. J. & T. Powell	Ceylon, 846 brls. R. G. Hall & Co.	" 26 S. H. Willoughby	Rotterdam, 68 cks.
Logwood 100 t. C. Leary & Co.	" 169 203 cks. J. Thredder, Son, & Co.	Austria, 44 M. Ashby, Ltd.	Paint —
Laguna, 100 t. Myrabolams	Germany, 51 B. Gallaway	Holland, 45 brls. W. Adolph & Co.	New York, 2 cs.
E. Indies, 670 pkgs. Darling Bros.	Potassium Bicarbonate —	" 10 cks. Philipps & Graves	Amsterdam, 5 27 dms. 3 kgs.
" 913 Baxter & Hoare	Holland, 13 cks. A. & M. Zimmermann	" 30 A. & M. Zimmermann	Paraffin Wax —
" 683 C. E. Fosbrooke	Potassium Carbonate —	Wood Pulp —	Baltimore, 100 brls.
Safflower 2 pkgs. J. P. Alpe & Co.	Germany, 110 c. H. Grey, jun.	Norway, 406 pkgs. W. G. Taylor & Co.	Phosphate —
Saffron 1 pkge. J. Knill & Co.	Belgium, 104 Beresford & Co.	Sweden, 476 C. S. Lovell	Trepot, 340 t.
Shumac 650 pkgs. J. Kitchen, Ltd.	" 20 Beresford & Co.	Denmark, 280 G. F. Green & Co.	Ghent, 1,000 bgs.
Italy, 500 Bailey & Leatham	Potassium Oxalate —	Austria, 136 Tough & Henderson	Phosphate Rock —
" 600 Bevington & Sons	Holland, 20 pkgs. Beresford & Co.	Holland, 1,353 E. J. & W. Goldsmith	Beaufort, S.C., 2,900 t. J. Adger & Co.
" 500 Hicks, Nash & Co.	Potassium Permanganate —	" 540 Philipps & Graves	Pitch —
" 100 W. Barter & Co.	Holland, 15 pkgs. F. Boehm	Norway, 80 Page, Son, & East	Dunkirk, 54 cks.
" 84 J. Knill & Co.	Pumice Stone —	Sweden, 40 Henderson, Craig, & Co.	Potash —
Portugal, 100 M. de J. Levy & Son	Italy, 10 t. Seaward Bros., Ltd.	Germany, 50 brls. M. Ashby, Ltd.	Dunkirk, 80 dms.
Belgium, 47 H. A. Litchfield & Sons	" 4 1/2 O'Hara & Hoar	" 25 cks. T. H. Lee	Pyrites —
Tanner's Bark	Canary, 10 L. & I. Dk. Co.	Holland, 50 J. Matton	Huelva, 1,752 t. Matheson & Co.
Adelaide, 33 t. Dyster, Nalder & Co.	Italy, 10 Acton & Borman	Germany, 7 pkgs. City Coml. Wf., Ltd.	Rosin —
" 67 Baxter & Hoare	Pyrites —	Belgium, 6 T. H. Lee	New York, 1,050 brls.
" 14 Beresford & Co.	Spain, 1,000 t. C. L. Vasey & Co.	" 6 Knight, Hill, & Co.	Baltimore, 253 brls.
" 71 Brown & Elmslie	Quicksilver —	LIVERPOOL.	Salt —
" 34 Devitt & Hett	Italy, 500 btl. L. & I. D. Jt. Co.	Week ending September 6th.	Hamburg, qty. W. Blyth & Co.
Turmeric	Rosin —	Antimony Ore —	Saltpetre —
E. Indies, 85 pkgs. Forbes & Forbes	U. States, 5,272 brls. Prod. Brokers' Co.	Antofagasta, 280 sks. Aillon, Aramayo & Co.	Boston, 4 cs. Barclay & Son
France, 15 B. & F. Wf. Co.	" 250 Moore & Hole	" 135 F. Huth & Co.	" 2 J. Thompson
Rangoon, 50 Hoare, Wilson & Co.	" 500 C. Tennant, Sons & Co.	" 100 Kleinwort, Sons & Co.	" 2 Evans, Sons & Co.
Dyestuffs (otherwise undescr'd)	" 250 G. Nutter & Co.	Valparaiso, 225 A. Gibbs & Sons	Soapstone —
France, 30 pkgs. Prop Hay's Wf.	Saltpetre —	" 394 Aillon, Aramayo & Co.	Bordeaux, 202 pkgs. G. G. Blackwell & Co.
Farina	Germany, 100 bgs. P. Hecker & Co.	Barytes —	Starch —
Germany, 100 pkgs. T. H. Lee	E. Indies, 1,489 Lucas & Spencer's Wf., Ltd.	Rotterdam, 22 cks.	Rotterdam, 180 cs.
Holland, 50 H. Lorenz	Sodium Acetate —	Bremen, 125	Stearine —
Germany, 50 J. Barber & Co.	France, 9 pkgs. S. F. Waters & Co.	Bone Meal —	New York, 10 bds.
Glucose	Sodium Hyposulphite —	Karachi, 211 pkgs. W. & R. Graham & Co.	Bordeaux, 15 cs.
Germany, 150 pkgs. 1,134 c. R. G. Hall & Co.	Germany, 117 pkgs. F. Boehm	Boracite —	New York, 60 brls.
" 100 762 c. Prop. Chmbln.'s Wf.	Holland, 14	Panderma, 200 t. M. Arlinthnot	Tartar —
" 10 80 J. Barber & Co.	Sodium Nitrate —	Borax —	Bordeaux, 8 cks.
U. States, 500 500 Ohlenschlaeger Bros.	Holland, 8 pkgs. Philipps & Graves	Mollendo, 700 sks. F. Huth & Co.	Tartaric Acid —
" 2,050 2,050 Beck & Pollitzer	Sodium Sulphate —	Rosario, 383 bgs.	Rotterdam, 10 blns.
" 450 1,350 R. G. Hall & Co.	Belgium, 35 pkgs. F. W. Berk & Co.	Castor Oil —	Hamburg, 3 cks.
" 500 500 G. Hedges & Son	Starch —	Calcutta, 164 cs. Ralli Bros.	Tinical —
" 50 282 Union Lithg. Co., Ltd.	Germany, 3,310 pkgs. Horne & Co.	Colours —	Calcutta, 167 bgs.
" 50 282 J. T. Morton	Belgium, 208 F. Rosenthal & Co.	Boston, 1 kg. Musson & Co.	Yerdigris —
" 50 834 F. J. Warren	" 20 Pickford & Co.	Rotterdam, 6 cs. W. Hamer	Bordeaux, 3 cks.
" 50 282 L. & I. D. Jt. Co.	" 40 Sawyer, Sons, & Co.	Bremen, 2 cks.	Waste Salt —
" 150 835 A. Lyle & Sons, Ltd.	" 590 Prop. Scott's Wf.	Dyestuffs —	Hamburg, 740 brls. C. Bracewell
" 200 1,176 Soundy & Sons	Holland, 446 Little & Johnston	Algarroballa	Dunkirk, 600 bgs.
" 300 300 Trier, Meyer & Co.	" 194 Philipps & Graves	Totalalillo, 55 cs. Schintz & Co.	Wood Pulp —
" 700 700 L. Norman & Co., Ltd.	Germany, 40 J. Barber & Co.	Coquimbo, 29 sks. Schintz & Co.	Fredrikstad, 4,200 bgs. W. Hamer
Germany, 88 704 Soundy & Sons	Belgium, 8 Philipps & Graves	Argols	Montreal, 7,019 bds. A. Rice & Co.
Manure	Stearine —	Oporto, 32 cks. German Bank of London	Skien, 4,289 bls.
Algeria, 500 t. Anglo-Cont. Guano Wks.	Queensland, 7 cks. Anning & Cobb	Cochineal	Zinc Ashes —
Germany, 55 t. Humphrey & Co.	Italy, 1 t. J. Kitchen, Ltd.	Extracts	New York, 19 brls.
Aden, 40 Culverwell, Brooks & Co.	" 5 F. & L. Siltzer	Bordeaux, 50 cks.	Zinc Oxide —
E. Indies, 200 A. Hunter & Co.	" 105 Soundy & Son	Baltimore, 50 brls. Mucklow & Co.	Rotterdam, 95 cks.
Harburg, 130 Lawes Manure Co., Ltd.	Belgium, 15 Union L. Co.	Fustic	MANCHESTER.
Methyl Alcohol	Tar —	Baltimore, 1,567 ps. Gouing & Co.	Week ending September 8th.
Belgium, 10 dms. Lister & Biggs	Germany, 25 cks. Watson & Metcalfe	Saffron	Acetate of Lime —
Germany, 10 Lister & Biggs	Belgium, 20 brls. T. H. Lee	Valencia, 51 cs.	Nantes, 83 bgs.
Ochre	Tartaric Acid —	Turmeric	Albumen —
Cartagena, 16 cks. Stobbs, Wilson & Co.	Holland, 11 pkgs. F. C. Devon & Co.	Calcutta, 500 bgs.	Trepot, 10 cs.
" 65 brls. J. Greig	Italy, 32 B. & F. Wf. Co.	Farina	Alumina Sulphate —
" 35 Hemingway & Co.	" 56 C. Christophersen & Co.	Hamburg, 300 bgs. H. Tyrer & Co.	Rotterdam, 68 cks.
Holland, 11 pkgs. Philipps & Graves	Tin Salts —	Glucose —	Aniline Colours —
Spain, 34 brls. Hemingway & Co.	Germany, 2 pkgs. H. Lambert	New York, 500 brls.	Hamburg, 19 cks.
" 16 C. F. Gerhardt	Turpentine —	Hamburg, 12 cks.	Arachide Oil —
France, 16 cks. Robinson & Co.	Savannah, 1,741 brls. Produce Brokers' Co., Ltd.	Dunkirk, 200 bgs.	Rotterdam, 15 cks.
" 29 brls. L. & I. D. Jt. Co.	Ultramarine —	Infusorial Earth	Barium Chloride —
" 41 W. Harrison & Co.	Belgium, 6 cs. W. Harrison & Co.	Hamburg, 44 bgs.	Antwerp, 5 cks.
Ozokerit	" 1 ck. Wearne, Clifford & Co.	Iodine —	Cellulose —
Germany, 179 pkgs. M. D. Co.	Holland, 2 brls. Leach & Co.	Valparaiso, 72 brls. A. Gibbs & Sons	Hamburg, 564 bls.
Paraffin Wax	" 38 pkgs. Thames S. T. & L. Co., Ltd.	Manganese	Chrome Acetate —
Rangoon, 566 cs. H. Hill & Sons	Varnish	Hamburg, 2 cks.	Rotterdam, 10 cks.
U. States, 243 brls. Mordant Bros.	Germany, 13 pkgs. L. & I. Dk. Co.	Manganese Ore	Chrome Alum —
" 2,050 Anglo-American Oil Co.	U. States, 9	Viragapatam, 978 t. Darwen & Mostyn	Rotterdam, 15 cks.
	France, 12 Flageolet & Co.	Los Villos, 1,300	Antwerp, 8 11 5
		" "	Trepot, 8 13

Farina —	
Hamburg,	112 bgs.
Glucose —	
Hamburg,	15 cks.
Lead Acetate —	
Rotterdam,	42 cks.
Limestone —	
Antwerp,	1 fm.
Litharge —	
Rotterdam,	3 cks.
Methyl Alcohol —	
Antwerp,	8 brls.
Ochre —	
Treport,	84 cks.
Oxalic Acid —	
Rotterdam,	15 cks.
Pitch —	
Rotterdam,	23 cks.
Soda —	
Treport,	100 cs.
Sodium Acetate —	
Rotterdam,	1 cs.
Sodium Prussiate —	
Antwerp,	19 cks.
Starch —	
Rotterdam,	40 cs.
Antwerp,	20
Stearine —	
Antwerp,	7 bgs.
Sulphuric Acid —	
Rotterdam,	12 cks.
Tartaric Acid —	
Rotterdam,	12 cks.
Tin Oxalate —	
Rotterdam,	6 brls.
Tin Perchloride —	
Antwerp,	2 brls.
Waste Salt —	
Hamburg,	qty.
Wood Spirit —	
Hamburg,	2 dms.
Zinc Oxide —	
Rotterdam,	95 brls.

HULL.

Week ending September 8th.

Acid —	
Bari,	14 cks. Wilson, Sons, & Co., Ltd.
Leghorn,	22 cks. "
Albumen —	
Hamburg,	52 cks. Wilson, Sons, & Co., Ltd.
Alkali —	
Bremen,	1 cs. Veltmann & Co.
Aluminium —	
New York,	6 bxs. Wilson, Sons, & Co., Ltd.
Asbestos —	
Rotterdam,	2 bls. Hutchinson & Son
Genoa,	22 cs.
Barytes —	
Rotterdam,	100 bgs. 24 cks. Hutchinson & Son
Antwerp,	52 cks. Bailey & Leatham
Binetro Toluol —	
Rotterdam,	9 cks. W. & C. L. Ringrose
Bog Ore —	
Dordt,	110 t.
Bone Meal —	
Bombay,	3,764 bgs.
Camphor —	
Hamburg,	3 brls. Wilson, Sons, & Co., Ltd.
Caoutchouc —	
Hamburg,	5 cs. Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)	
Bremen,	4 kgs. 9 pks. Veltmann & Co.
Messina,	1 ck. Wilson, Sons, & Co., Ltd.
Antwerp,	100 pks. "
Cod Oil —	
Drontheim,	16 brls. Wilson, Sons, & Co., Ltd.
Aalesund,	160 "

Colours —	
Rotterdam,	43 cks. 14 pks. Hutchinson & Son
"	18 cs. 24 7 pks. W. & C. L. Ringrose
Ghent,	"
Stettin,	120 " Bailey & Leatham
Hamburg,	5 " Johnson Bros.
Bremen,	2 " "
Amsterdam,	14 " "
Riga,	101 pks. Wilson, Sons, & Co., Ltd.
Antwerp,	5 " "
Cryolite —	
Copenhagen,	3 cks. Wilson Sons, & Co., Ltd.
Dextrine —	
Stettin,	100 bgs. Wilson, Sons, & Co., Ltd.
Dyestuffs —	
Rotterdam,	51 brls. 1 cs. Hutchinson & Son
Fustic	
Trieste,	5 t. Wilson, Sons, & Co., Ltd.
Indigo	
Hamburg,	2 cs. Wilson, Sons, & Co., Ltd.
Madder	
Rotterdam,	12 cks. W. & C. L. Ringrose
Nyrololams	
Bombay,	24,546 bgs.
Shumac	
Trieste,	25 bls. Wilson, Sons, & Co., Ltd.
Palermo,	1,007 bgs. "
1,664	
Farina —	
Danzig,	100 bgs. Wilson, Sons, & Co., Ltd.
Ghent,	300 cs. "
Stettin,	600 bgs. "
Harlingen,	509 575 pks. "
Glucose —	
New York,	200 bgs. 200 brls. Wilson, Sons, & Co., Ltd.
Stettin,	36 cks. "
"	250 bgs. "
Kaolin —	
Rotterdam,	24 bgs. Reckitt & Sons
Lead Acetate —	
Rouen,	15 cks. "
Manure —	
Hamburg,	150 bgs. Wilson, Sons, & Co., Ltd.
Ochre —	
Marseilles,	16 cks. Wilson, Sons, & Co., Ltd.
"	123 "
Paint —	
Hamburg,	1 cs. Wilson, Sons, & Co., Ltd.
Phosphate Rock —	
Port Royal,	2,489 t.
Pitch —	
Hamburg,	13 cks. Wilson, Sons, & Co., Ltd.
Plumbago —	
Antwerp,	10 bgs. Bailey & Leatham
Potash —	
Stettin,	1 ck. Wilson, Sons, & Co., Ltd.
Dunkirk,	41 dms. "
Hamburg,	28 cs. "
Pumice Stone —	
Messina,	4 cks. Wilson, Sons, & Co., Ltd.
Leghorn,	12 bgs. "
"	10 cks. "
Rosin —	
Brunswick,	1,632 brls.
Saltpetre —	
Hamburg,	7 pks. 82 cks. Wilson, Sons, & Co., Ltd.
Soap —	
Naples,	38 cs. Wilson, Sons, & Co., Ltd.
Marseilles,	13 " "
"	5 " "
Starch —	
Bremen,	1,998 pks. Veltmann & Co.
Antwerp,	200 cs. Wilson, Sons, & Co., Ltd.
Stearine —	
Antwerp,	57 bgs. Wilson, Sons, & Co., Ltd.

Sulphur —	
Catania,	3,240 pks. Wilson, Sons, & Co., Ltd.
"	98 100 t. "
Tallow —	
St. Petersburg,	100 cks
Tar —	
Stockholm,	100 brls. Wilson, Sons, & Co., Ltd.
Riga,	1 cs. "
Turpentine —	
Brunswick,	2,000 brls.
Ultramarine —	
Bremen,	16 cks.
Varnish —	
Hamburg,	1 cs. Wilson, Sons, & Co., Ltd.
White Lead —	
Rotterdam,	36 cks. Hutchinson & Son
Antwerp,	42 Bailey & Leatham
Rotterdam,	53 W. & C. L. Ringrose
Wood Pulp —	
Helsingfors,	231 bls. J. Good & Sons
"	352 Furley & Co.

GLASGOW.

Week ending September 13th.

Acetate of Lime —	
New York,	856 bgs.
Alum —	
Rotterdam,	38 cks. J. Rankine & Son
Aniline Colours —	
Rotterdam,	3 bxs. 9 brls. J. Rankine & Son
Aniline Salts —	
Rotterdam,	1 cs. "
Barytes —	
Rotterdam,	46 pks. 75 cks.
Barytes Sulphate —	
Antwerp,	100 bgs. 19 cks.
Chemicals (otherwise undes.) —	
Antwerp,	14 cks.
Rotterdam,	2 cs.
Colours —	
Rotterdam,	22 pks.
Hamburg,	1 ck.
Dyestuffs —	
Alizarine	
Rotterdam,	2 bxs. 20 brls. J. Rankine & Son
"	43 pks.
Argols	
Bordeaux,	95 bls.
Cutch	
Rangoon,	1,476 bxs.
Boston,	5 brls.
Extracts	
Rouen,	15 cks.
Antwerp,	20 "
Hayre,	100 cs.
Fustic	
Milk River,	84 t. Wm. Connal & Co.
Logwood	
Milk River,	301 t. Wm. Connal & Co.
Glucose —	
New York,	200 brls.
Ochre —	
Rouen,	56 cks.
Oxalic Acid —	
Rotterdam,	7 cks. J. Rankine & Son
Paraffin Scale —	
Rangoon,	165 cs.
Pitch —	
Archangel,	350 cks. M'Lean, Todd, & Co.
Potash —	
Rotterdam,	20 cks.
Pyrites —	
Huelva,	1,750 t. Tharsis Co.
Rosin —	
New York,	1,100 brls.
Sodium Acetate —	
Rouen,	15 cks.
Sodium Prussiate —	
Ghent,	10 cks.
Starch —	
Antwerp,	200 cs. 40 bgs.
Tar —	
Archangel,	1,650 brls. M'Lean, Todd, & Co.
"	1,557 Gourock Ropework Co.

Rotterdam,	1 ck.
Yarnish —	
New York,	104 brls.
Waste Salt —	
Hamburg,	224 t.
White Lead —	
Rotterdam,	76 cks.
Antwerp,	8
Wood Pulp —	
Drontheim,	2,040 bls.
Christiania,	1,064
Zinc Oxide —	
Rotterdam,	25 cks. J. Rankine & Son
New York,	50 brls.

TYNE.

Week ending September 8th.

Carbonic Acid Gas —	
Rotterdam,	25 tubes. Tyne S. S. Co.
Colours —	
Antwerp,	1 ck. Tyne S. S. Co.
Farina —	
Hamburg,	50 bgs. Tyne S. S. Co.
Antwerp,	5 "
Glucose —	
New York,	50 brls.
Limestone —	
Antwerp,	3 crts. 2 slbs. Tyne S. S. Co.
Paint —	
Hamburg,	2 brls. Tyne S. S. Co.
Phosphate —	
Ghent,	300 bgs.
Pyrites —	
Huelva,	3,448 t. Scott Bros.
"	2,013
Soap —	
Rotterdam,	4 cs. Tyne S. S. Co.
Starch —	
Rotterdam,	62 cs. Tyne S. S. Co.
White Lead —	
Antwerp,	28 brls. Tyne S. S. Co.
Wood Pulp —	
Drammen,	102 bdl.
Gothenburg,	82 pks.
Christiania,	30 cs.
Laurvig,	60 bls.

GOOLE.

Week ending September 5th.

Antimony —	
Boulogne,	5 cks.
Dyestuffs —	
Alizarine	
Rotterdam,	104 pks.
Extracts	
Ghent,	125 cks.
Logwood	
Jamaica,	429 t.
Dyestuffs (otherwise undescribed)	
Rotterdam,	117 pks.
Boulogne,	14 cks. 13 cs.
Antwerp,	2
Farina —	
Hamburg,	2,600 bgs.
Delfshyhl,	2,520
Glucose —	
Hamburg,	35 cks.
Potash —	
Rotterdam,	20 cks.
Dunkirk,	22
Saltpetre —	
Hamburg,	45 cks.
Rotterdam,	100 bgs.
Sulphur Ore —	
Seville,	1,075 t.
Waste Salt —	
Hamburg,	488 cks. 50 t.
Zinc Oxide —	
Antwerp,	59 cks.

GRIMSBY.

Week ending September 8th.

Aniline Dyes —	
Hamburg,	22 cks.
Caoutchouc —	
Hamburg,	4 cs.
Saltpetre —	
Rotterdam,	170 bgs.
Size —	
Antwerp,	4 cks.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 12th.

Alkali—		
Greytown, 6 t.	£68	
Ammonia—		
Hong Kong, 6 cs	£26	
Ammonium Carbonate—		
Rouen, 3 t.	£103	
Yokohama, 1	34	
Ammonium Chloride—		
Philadelpia, 16 cks.	£110	
Seville, 11 c.	20	
Ammonium Nitrate—		
Bilbao, 70 cks.	£353	
Ammonium Sulphate—		
Paris, 25 t.	£350	
Cologne, 50	683	
Arsenic—		
Wellington, 1 t.	£17	
Barytes Sulphate—		
Leghorn, 30 cks.	£85	
Naples, 14	47	
Bisulphite of Lime—		
Paris, 2 t. 8 c.	£20	
Calcutta, 2 17	56	
Borax—		
Hamburg, 12 cks.	£87	
Rockhampton, 5 kgs.	18	
Borax and Ammonia (Liquid)—		
Sydney, 5 pkgs.	£16	
Carbolic Acid—		
Rio de Janeiro, 11 c.	£18	
Antwerp, 8 cns.	9	
Yokohama, 2 t.	105	
Carbon Bisulphide—		
Philadelpia, 6 t. 11 c.	£104	
Caustic Potash—		
Sydney, 1 t. 10 c.	£30	
Caustic Soda—		
Algoa Bay, 1 t. 15 c.	£47	
Sydney, 9 19	109	
Melbourne, 9 10	216	
Auckland, 10	87	
Natal, 4	10	
Chemicals (otherwise undescribed)		
Auckland, 2 brls 3 cs.	£49	
Algoa Bay, 30 kgs.	8	
Oporto, 1 t. 16 c.	124	
Wellington, 1 cs. 3 cks.	48	
Seville, 4 c.	64	
Adelaide, 22 3	35	
Chloride of Lime—		
Rio de Janeiro, 5 c.	£7	
Citric Acid—		
St. Petersburg, 1 t. 10 c.	£200	
Wellington, 1	8	
Melbourne, 5	33	
Hamburg, 10 kgs.	65	
Algoa Bay, 5	33	
Barcelona, 1	132	
Genoa, 3	420	
Coal Products—		
Aniline Dyes		
Valencia, 1 cs.	£12	
Aniline Oil		
Genoa, 20 drs.	£545	
New York, 10	275	
Aniline Salts		
New York, 40 cks.	£250	
Anthracene		
Rotterdam, 52 cks.	£260	
Benzol		
Treport, 40 cks.	£81	
Boulogne, 10	74	
Rotterdam, 39 pns.	277	
Naphtha		
Auckland, 20 drs.	£20	
Wellington, 20	20	
Melbourne, 10	14	
Naphthaline		
Hamburg, 31 cks. 182 pkgs.	270	

Pitch		
Helsingfors, 165 t.	£262	
New York, 1,120 bgs.	174	
Newport News, 675	208	
Tar		
Helsingfors, 450 brls.	£251	
Coal Products (otherwise undes.)—		
Melbourne, 25 brls. 25 drs.	£34	
Copperas—		
Sydney, 2 t. 11 c.	£6	
Copper Sulphate—		
Sydney, 2 t.	£30	
Treport, 5 15 c.	94	
Adelaide, 1	15	
Melbourne, 5	75	
Cream of Tartar—		
Sydney, 1 t. 10 c.	£102	
Adelaide, 15	56	
Cape Town, 2	6	
Melbourne, 2 10	158	
Disinfectants—		
Calcutta, 30 cks.	£48	
Cape Town, 32 pkgs. 100 drs.	40	
Adelaide, 2 cs. 2 c.	24	
Jamaica, 50 drs.	45	
Hypophosphite of Lime—		
Philadelpia, 30 cs.	£558	
Manure—		
Lisbon, 5 t.	£20	
Genoa, 29 11 c.	85	
Rouen, 118 4	405	
Bordeaux, 50	245	
Treport, 59 15	360	
Oxygen—		
B. Ayres, 2 cs.	£16	
Potash—		
Calcutta, 5 c.	£25	
Genoa, 6	7	
Potash Crystals—		
Toronto, 1 c.	£8	
Brussels, 9	75	
Potassium Chlorate—		
Lisbon, 10 c.	£27	
Wellington, 6	20	
Potassium Prussiate—		
Lisbon, 4 c.	£20	
Saltetre—		
Oporto, 4 t. 16 c.	£100	
Rio de Janeiro, 9 15	227	
Algoa Bay, 5	6	
Corunna, 18	19	
Sydney, 1 2	23	
Gibraltar, 10	230	
Hamburg, 1	23	
Sheep Dip—		
Antwerp, 6 cs.	£12	
E. London, 8 t. 8 c.	551	
B. Ayres, 44 13	1,201	
Punta Arenas, 56 pkgs. 47 cs.	278	
Soda—		
Toronto, 1 t. 10 c.	£11	
Algoa Bay, 15	5	
Melbourne, 2	14	
Soda Crystals—		
Melbourne, 3 t. 1 c.	£21	
Algoa Bay, 1 18	25	
Stockholm, 18 16	38	
Soda Salts—		
New York, 3 t. 12 c.	£70	
Sodium Bicarbonate—		
Auckland, 5 t.	£50	
Huelva, 10 c.	6	
Sodium Hyposulphite—		
Adelaide, 20 t. 7 c.	£112	
Sodium Sulphate—		
Stockholm, 75 t.	£112	
Sulphur—		
Algoa Bay, 4 t. 7 c.	£34	
Tartaric Acid—		
Sydney, 1 t. 10 c.	£146	
Cape Town, 11	54	
Melbourne, 1	95	

LIVERPOOL.

Week ending September 12th.

Acetic Acid—		
Ceara, 1 t. 3 c. 3 q.	£27	
Alum—		
Brisbane, 1 t.	£5	
Malta, 1 2 c.	5	
London, 2 19	13	
Volo, 1 18 2 q.	9	
Montreal, 3 14	17	
Corunna, 1 2	6	
Melbourne, 5 1	24	
Tripoli, 1 5	9	
Smyrna, 2	14	
Ammonium Carbonate—		
St. Petersburg, 5 t.	£190	
Bourgas, 1 t. 4 c.	7	
Lisbon, 10	21	
Montreal, 1 3	35	
Corunna, 1 2	4	
Ibrai, 10	17	
Havre, 1 1	35	
Ammonium Chloride—		
Stettin, 1 t. 4 c. 3 q.	£42	
Rotterdam, 2 2 1	36	
Barcelona, 2	74	
Varna, 6	10	
Smyrna, 12	21	
Cardenas, 2 1	5	
Maccio, 5	13	
Ammonium Sulphate—		
Barcelona, 56 t. 12 c.	£775	
Carthage, 5 9 2 q.	77	
Newport News, 48 19 3	670	
Sourabaya, 51 4 1	714	
Valencia, 51 14 1	722	
Asbestos—		
Bahia, 1 cs.		
Barytes Chlorate—		
Venice, 6 c.	£33	
Bleaching Powder—		
Bombay, 8 cs.		
Boston, 347 cks.		
Havana, 29		
Naples, 42		
New York, 194		
Norfolk, 109		
Piræus, 3		
Riga, 61		
Rouen, 14		
St. Petersburg, 16		
Vera Cruz, 3		
Auckland, 2		
Calcutta, 125		
Bog Ore—		
B. Ayres, 20 t. 16 c.		
Boracic Acid—		
Hong Kong, 3 c. 3 q.	£6	
Hamburg, 2	3	
Borax—		
Stockholm, 5 t. 11 c. 1 q.	£111	
Ibrai, 1 1	30	
Offenbach, 6	6	
Viesville, 1 7	27	
Namur, 5 2	102	
London, 9	9	
Constantinople, 10	11	
Antwerp, 11 6	290	
Gothenburg, 1 1	21	
Rotterdam, 8 8	184	
Melbourne, 2	45	
Sydney, 1 1	22	
Lisbon, 11	17	
Hamburg, 3 4 2	61	
Borate of Lime—		
Hamburg, 9 t. 15 c. 1 q.	£85	
Calcium Chloride—		
Brisbane, 5 t. 3 c.	£12	
New York, 12 18	34	
Carbolic Acid—		
Hamburg, 1 t. 8 c. 1 q.	£83	
New Orleans, 17 3	71	
Calcutta, 2 2	5	
New York, 2 12 2	169	
Philadelpia, 3 2	20	
Castor Oil—		
Honolulu, 100 dms.		
Caustic Potash—		
Wellington, 13 c.	£17	
Caustic Soda—		
Alicante, 30 dms.		

Aracaju, 10		
Barcelona, 300	70 cks.	
Boston, 275		
Bremen, 5 brls.		
Cadiz, 16		
Cienfuegos, 20		
Dunedin, 38		
Fiume, 140		
Galveston, 75		
Genoa, 150		
Hamburg, 30		
Havana, 30		
Hiogo, 50		
Lancaster, 35		
Leghorn, 18		
Melbourne, 18		
Messina, 86		
M. Video, 100		
Naples, 9		
N. York, 25 kgs. 150	25 brls. 50	
540 cs.		
Palermo, 25		
Panama, 16		
Para, 20 cks.		
Penang, 40		
Pernambuco, 25		
Rio de Janeiro, 50		
Rouen, 17		
St. Petersburg, 300		
Samarang, 12		
Sydney, 8		
Toronto, 35		
Trieste, 30		
Vera Cruz, 50		
Vigo, 19		
Volo, 10 kgs.		
Woodstock, On., 50		
Yokohama, 3		
Amsterdam, 169		
Calcutta, 20		
Cardenas, 35		
Carril, 4		
Galatz, 346		
Ibrai, 70		
Lisbon, 15		
Philadelpia, 50	25	
Portland, Or., 125		
Pt. Natal, 1 bx.		
Quebec, 50		
Chemicals (otherwise undescribed)		
Cairo, 1 t.	£37	
Palermo, 10 c.	28	
Hamburg, 5	9	
Volo, 10	18	
China Clay—		
Bombay, 60 t. 10 c.		
Boston, 894		
Genoa, 28 14		
Leghorn, 2		
New York, 50		
Philadelpia, 225		
Citric Acid—		
Algoa Bay, 1 c.	£9	
Coal Products—		
Alizarine Oil		
Boston, 10 cks.		
Aniline Colours		
Calcutta, 1 cs.		
New York, 5 cks.		
Shanghai, 45		
Aniline Dyes		
Canada, 4 kgs.		
Aniline Salts		
Genoa, 1 ck. 5 dms.		
Boston, 30 cs.		
Yokohama, 5		
Creosote Oil		
Ostend, 550 brls.		
Pitch		
Cette, 1,707 t. 10 c.		
Galveston, 107 16		
Tar		
Sulina, 20 brls.		
Galveston, 200		
Coal Products (otherwise undes.)—		
New York, 9 cs. 38 cks.		
Cobalt Oxide—		
Gijon, 1 c. 3 q.	£64	
Rotterdam, 2	55	
Cod Oil—		
Adelaide, 6 brls.		
Colours—		
New York, 2 pkgs. 1 cs.		
Copperas—		
Madras, 7 t. 3 c. 2 q.	£14	
Caldera, 10	19	

Copper Sulphate—

Nantes, 16 t. 3 c. £225
 Paris, 11 5 150
 Constantinople, 1 15 26

Disinfectants—

Karachi, 5 t. £40

Farina—

Boston, 20 sks.
 Rio de Janeiro, 20 bgs.

Guano Phosphate—

Hamburg, 30 t. £135

Lamp Black—

Lisbon, 3 cks.

Magnesium Chloride—

Bombay, 2 t. £10

Magnesium Sulphate—

Pernambuco, 5 t. £22
 Honolulu, 10 cs.

Manganate—

New York, 10 c. £8

Manganese Sulphate—

New York, 14 c. 3 q. £17

Manure—

Havre, 300 t. 2 c. £1,705
 Venice, 93 10 2 q 283
 Teneriffe, 2 16
 Valencia, 50 11 150
 Rochefort, 763 18 1 3,139

Metallic Sodium—

Rotterdam, 3 t. 4 c. 3 q. £772

Muriate of Lime—

Sydney, 16 t. £36

Oxalic Acid—

Auckland, 2 cks. £18

Paint—

Cadiz, 12 dms.

Cameroons, 12 7 kgs. 6 brls.

Hamburg, 13 3

Havre, 2 cks.

Honolulu, 13

Jeremie, 3

Kingston, Jam., 300

Lisbon, 20

Manila, 12

Mollendo, 1 13 crts. 9 cs.

Nassau, 1

Old Calabar, 12

Pernambuco, 16 135

Ponce, 13

S. John's, N'd., 16

San Juan, 1 200

Sierra Leone, 9 11 dms. 60 kgs.

Smyrna, 160

Venice, 2

Acajutla, 9

Antwerp, 9

Cape Town, 5

Cardenas, 2

Havana, 1

Manaos, 8

New York, 4

Sydney, 2

Teneriffe, 1 100

Trieste, 40

Paint & Painters' Colours—

Hamburg, 13 kgs. 2 dms.

Painters' Colours—

Antwerp, 26 kgs. 19 cs.

Bahia, 94 5 cs. 19 brls.

Beyrout, 22

Bombay, 404 pkgs.

Boston, 2

B. Ayres, 160 20 36

Ceara, 5 6

E. London, 150

Galatz, 218

Gothenburg, 15

Guantanamo, 1 3

Halifax, 152 8

Hamburg, 100 bgs.

Havana, 100 4 1 1

Lisbon, 3 36

Malta, 9

Marseilles, 10

Montreal, 3

N. Orleans, 200

Para, 123 47 36

Rio de Janeiro, 4 pkgs.

Rotterdam, 6

Salonica, 3

Sydney, 87 kgs. 32 1 5

Bremerhaven, 12 2 dms.

Calcutta, 4

Cape Town, 24 1

Genoa, 1

Harbor Grace, 10 brls.

Hong Kong, 200

Penang, 6

Pernambuco, 70

Sierra Leone, 74 1 1

Sourabaya, 4 13

Sydney, 5 3

Vera Cruz, 100

Paraffin Wax—

Bombay, 4 cs.

Para, 5 cks.

Rio de Janeiro, 20 bgs.

Trieste, 20

New York, 20

Odessa, 20

Phosphorus—

Vera Cruz, 10 cks. 1 cs. £135

Picric Acid—

New York, 1 t. 16 c. £157

Plumbago—

Barcelona, 2 cks.

Potash—

Para, 10 c. £21

Potassium Bichromate—

Passages, 1 t. 3 c. 1 q. £46

San Sebastian, 1 3 1 48

Norrkoping, 5 4 3 198

Potassium Carbonate—

New York, 3 t. 6 c. £70

Potassium Chlorate—

Sydney, 1 t. 10 c. £85

Ancona, 1 60

Hamburg, 1 19 111

Philadelphia, 1 5 72

Rotterdam, 16 48

Yokohama, 12 10 741

Hio, 15 836

St. Petersburg, 5 15 341

Boston, 2 10 160

Potassium Stannate—

Bombay, 1 t. 2 q. £77

Quicksilver—

Para, 1 cs.

Salt—

Ambriz, 86 t. 5 c.

Antwerp, 245

Baltimore, 300

Bata, 9

Brass, 12 10

Cameroons, 100

Cape Lopez, 9

Town, 7

Chicago, 280

Galveston, 700

Ghent, 30

Lagos, 151 15

Melbourne, 100

Mobile, 600

Montreal, 561

Newcastle, N.S.W., 37 t. 17 c.

Newport News, 15 t.

New York, 1 042 10 c.

Noqui, 93 15

Old Calabar, 370

Philadelphia, 700

Rio de Janeiro, 2

Rotterdam, 250

Tonsberg, 250

Vancouver, 175

Brisbane, 25

Brussels, 1 18

B. Ayres, 55

Canada, 20

C. C. Castle, 10

E. London, 50

Faroe Islands, 200

Forcados, 450

Halifax, 11 7

Leghorn, 3,442 2

Loango, 5

Matadi, 12 3

Quebec, 55 cs.

Sapelli, 29

Saltcake—

Newport News, 50 t. 9 c. 1 q. £38

Antwerp, 198 228

Philadelphia, 150 4 172

Rotterdam, 9 15 5

Saltpetre—

Maceio, 9 c. 3 q. £11

Pernambuco, 2 t. 17 1 67

Ceara, 7 4 2 161

Almeria, 5 5

Sheep Dip—

E. London, 2 t. £30

B. Ayres, 23 1,000

St. Louis, U.S.A., 1 18 c. 33

Natal, 100 dms. 30

Punta Arenas, 4 110

Soap—

Alexandria, 11 bxs.

Antwerp, 25

Barbados, 302

Barcelona, 1 cs.

Boma, 10

Bombay, 560 10

Buenaventura, 48 6 250 bdis.

Cameroons, 257

Colon, 160

Constantinople, 300

Drewin, 15

Gibraltar, 700

Guayaquil, 406

Hamburg, 50

Honolulu, 200

Iquitos, 50

Kingston, Ja., 930

Kurrachee, 508 4

Maceio, 25

Manaos, 200

Montego Bay, 25

Nassau, 14

New York, 100 105

Nkama, 35

Panama, 500

Rio de Janeiro, 272

St. John's, Nfld., 608

St. Lucia, 50

St. Thomas, 400

Sapeli, 100

Shanghai, 3,000

Surinam, 250

Sydney, 25

Teneriffe, 35

Tientsin, 200

Trinidad, 193

Zanzibar, 8 000

Accra, 1

Cape Town, 550 6

Las Palmas, 816

Madras, 5 10

Montreal, 200

Philadelphia, 1

Pt. Natal, 50

Santos, 12

Savannah la Mar, 64

Singapore, 285

Toronto, 50

Soda—

Lisbon, 2 cks.

Soda Alkali—

Brisbane, 32 brls.

Leghorn, 60

Odessa, 350

Panama, 30

Seville, 35

Soda Ash—

Antwerp, 220 bgs.

Barcelona, 60 cks.

Bombay, 5 kgs.

Boston, 53 920 66 tes.

Brisbane, 30

B. Ayres, 25 100 brls.

Calamata, 10

Calcutta, 6 300

Genoa, 100 100

Ghent, 134

Hamburg, 118

Melbourne, 100

M. Video, 52

Montreal, 100 32 tes.

New Glasgow, 13

Newport News, 82 1,320

New York, 85 3,060 393

Norrkoping, 50

Philadelphia, 14 1,768 127

Porto Alegre, 149

Rio Grande do Sul, 70

de Janeiro, 200 brls.

Saltito, 38

Samarang, 17

San Francisco, 72 tes.

Shanghai, 8

Smyrna, 50 100 brls.

HULL.

Week ending September 8th.

Alkali—		
Helsingfors,	10 cks.	
St. Petersburg,	17	
Ammonium Sulphate—		
Dunkirk,	92 bgs.	
Danzig,	752	
Stockholm,	142	
Stettin,	339	
Bleaching Powder—		
Boston,	86 cks.	
Stettin,	8	
Borax—		
Bergen,	5 cks.	
Caustic Soda—		
Stettin,	34 dms.	
Wyburg,	25 32 cs. 9 cks.	
Chemicals (otherwise undes.)—		
Amsterdam,	6 cks.	
Antwerp,	26 cs. 6 pkgs.	
Bergen,	1	
Christiania,	5	
Constantinople,	50 10	
Copenhagen,	4 60	
Danzig,	15 22	
Gothenburg,	3 10	
Helsingfors,	4	
Hamburg,	7 11	
Harlingen,	20	
Konigsberg,	13	
Odessa,	37	
Rotterdam,	34 60	
Stockholm,	2	
Stettin,	8 1	
Cottonseed Oil—		
Bremen,	100 c.	
Copenhagen,	135	
Gothenburg,	230	
Hamburg,	1,140	
Rotterdam,	1,102	
Stockholm,	41	
Trieste,	400	
Cresosote—		
Copenhagen,	10 cks.	
Dyestuffs (otherwise undescribed)		
Boston,	5 cks.	
Christiania,	130 bls.	
Danzig,	1 1 cs.	
Konigsberg,	3	
Riga,	3 3	
St. Petersburg,	48 6	
Linseed Oil—		
Antwerp,	129 c.	
Bremen,	7	
Bergen,	85	
Christiania,	393	
Christiansund,	25	
Copenhagen,	20	
Drontheim,	51	
Hamburg,	375	
New York,	177	
Rotterdam,	149	
Stockholm,	50	
Logwood—		
Norrkoping,	30 bls.	
Manure—		
Danzig,	505 t.	
Mineral White—		
Amsterdam,	200 bls.	
Ochre—		
Hamburg,	5 cks.	
Paint—		
Copenhagen,	1 cs.	
Painters' Colours—		
Amsterdam,	12 cks.	
Antwerp,	28 1 cs. 1 dm.	
Bordeaux,	26 pkgs.	
Bremen,	10 4	
Bergen,	3	
Copenhagen,	1 1 4	
Drontheim,	8 19	
Dunkirk,	8 1	
Danzig,	8	
Fiume,	3	
Gothenburg,	4	
Helsingfors,	2	
Hamburg,	26 1 1	
New York,	130	
Odessa,	40	
Rotterdam,	5 22	
Stettin,	117	
Trieste,	100	
Phosphorus—		
Bari,	8 cs.	
Pitch—		
Antwerp,	220 t.	
Christiansund,	8 cs.	
Helsingfors,	162 cks.	
Slag—		
Stettin,	99 t.	

Tallow—

Gothenburg,	10 cks.	
Rotterdam,	26	
Tar—		
Copenhagen,	19 cks.	
Rotterdam,	2 1 dm.	
Varnish—		
Amsterdam,	1 cs.	
Antwerp,	1 3 cks.	
Copenhagen,	5	
Hamburg,	53 1 dm.	
Rotterdam,	5 2	
Stockholm,	6 4	

GLASGOW.

Week ending September 13th.

Acid—		
Bombay,	13 t. 8½ c.	£91
Ammonia—		
Dunkirk,	250 t.	
Ammonium Sulphate—		
Rotterdam,	50 t.	£598
Philadelphia,	51	690
France,	134 14½ c.	1,758
Rouen,	10 2½	130
Caustic Soda—		
N. S. Wales,		£230
Chemicals (otherwise undescribed)		
Rotterdam,	14 cks.	£34
Chloride of Lime—		
Sydney,	6 t. 10½ c.	£50
Coal Products—		
Aniline Dyes		
Calcutta,	5½ c.	£60
Aniline Oil		
Nantes,	13 c.	£34
Cresosote		
Stockholm,	8 bls.	£5
Pitch		
Calcutta,	43 t. 19 c.	£79
Oporto,	154 10	155
Tar		
Bombay,	55 mts.	£24 10s.
Rangoon,		£31
Stockholm,	20 bls.	11
Canada,	26 t. 13¾ c.	44
Dried Blood—		
Rouen,	9 t. 7 c.	£70
Dyestuffs—		
Extracts		
Montreal,	1 t. 15½ c.	£74
Logwood		
Halifax, N. S.,	3 t. 12½ c.	£35. 18s.
Canada,	4 6½	37
Dyestuffs (otherwise undescribed)		
Melbourne,	11 t. 18¾ c.	£387
Farina—		
Antwerp,	6 t.	£72
Glucose—		
Cape Colony,	14 t. 7½ c.	£260
New York,		60
Iodine—		
Rotterdam,	3 cks.	£900
Kainit—		
Sydney,	5 t.	£25
Lead Acetate—		
Bombay,	6 t. 9¾ c.	£90
Linseed Oil—		
Cape Colony,	1 t. 15½ c.	£39
Melbourne,	1 17½	35
Sydney,	3 8½	79
Alexandria,	9 1¾	203
Rangoon,	1 2½	25
Halifax,	1 ¾	20
Singapore,	2	43
Montreal,	8 11¾	176
Litharge—		
Bombay,	1 t. 13¾ c.	£20
Magnesium Sulphate—		
Calcutta,	20 t.	£90
Bombay,	20 2 c.	88
Montreal,	21 7	75
Nitrate of Lead—		
Rouen,	10 t. 18 c.	£180
Oxalic Acid—		
Melbourne,		£36
Paint—		
Natal,		£94
Sydney,	1 t. 19½ c.	69
Brisbane,	1 5½	30
Calcutta,	7 2	125
N. S. Wales,	12 19	234
Painters' Colours—		
Bombay,		£51
Cape Colony,		94
Calcutta,		50

Alexandria,	7 t. 7 c.	236
Rangoon,		155
Rotterdam,	2 dms.	72
Amsterdam,	2 cks.	7
Stockholm,	11	29
Singapore,	3 t. 18¾ c.	44
Japan,		70
Bombay,	13 8	217
Paraffin Wax—		
Cape Colony,	1 t. 5 c.	£25
Bombay,	1	27
Japan,	4 3	80
Nantes,	4 10½	115
Potash Salts—		
Cape Colony,	15 t. 9 c.	£2,378
Potassium Bichromate—		
Bombay,	5 t. 16½ c.	£225
Antwerp,	4 19	196
Stockholm,	4 cks.	65
Oporto,	4 t. 19½	197
Rouen,	6 19½	277
Rosin Oil—		
Stockholm,	25 bls.	£45
Sheep Dip—		
Melbourne,	1,000 gls.	£200
Slag—		
Rotterdam,	204 t.	£71
Soap—		
Bombay,	3 t. 5½ c.	£41
Cape Colony,	3 5½	52
Rangoon,	3 3	37
St. John's, N'd.,	2 6½	£33. 18s.
New York,	2 6½	£38
Colombo,	1 11	22
Sodium Bichromate—		
Bombay,	1 t. 13½ c.	£51
Rouen,	13 8	437
Sodium Stannate—		
Bombay,	10½ c.	£23
Sulphuric Acid—		
Rangoon,		£356
Tallow—		
Rotterdam,	4 t. 18 c.	£188
Oporto,	1 2	30
Varnish—		
N. S. Wales,	11¾ c.	£29
White Lead—		
Cape Colony,	8 t. 3¾ c.	£142
Sydney,	4 14½	93
Calcutta,	3	67
N. S. Wales,	7 16½	138
Antwerp,	5 7½	48
Singapore,	3 5½	65
Hong Kong,	2	34

TYNE.

Week ending September 8th.

Alkali—		
Gefle,	2 t. 9 c.	
Antwerp,	5 10	
Riga,	61 19	
Reval,	60 13	
Rotterdam,	2 19	
Newfairwater,	10	
Genoa,	8 16	
Ammonium Carbonate—		
Aarhus,	10 c.	
Antimony—		
Rotterdam,	3 t.	
Barcelona,	1 4 c.	
Arsenic—		
Barcelona,	1 t. 9 c.	
Venice,	5 3	
Barytes Carbonate—		
Hamburg,	150 t.	
Antwerp,	10 9 c.	
Barytes Sulphate—		
Valencia,	5 t. 7 c.	
Bleaching Powder—		
Hamburg,	40 t. 12 c.	
Antwerp,	45 12	
Konigsberg,	23 17	
Horsens,	3 1	
Rotterdam,	45 11	
Danzig,	11 15	
Newfairwater,	25 11	
Drontheim,	10 3	
Aarhus,	10 1	
Venice,	9 18	
Bergen,	1 4	
St. Petersburg,	218 12	
Caustic Soda—		
Braila,	42 t. 5 c.	
Stockholm,	5 16	
Hamburg,	49 18	
Antwerp,	18 5	
Riga,	10	
Konigsberg,	1 14	
Rotterdam,	10	

Copenhagen,	11	
Drontheim,	3 9	
Barcelona,	84 5	
Genoa,	45 1	
Venice,	32	
Litharge—		
Stockholm,	5 t. 11 c.	
Hamburg,	18	
Magnesia—		
Hamburg,	19 c.	
Antwerp,	1	
Copenhagen,	1 t. 4	
Barcelona,	1	
Genoa,	1 6	
Manure—		
Genoa,	50 t. 1 c.	
Valencia,	90 7	
Oxalic Acid—		
Genoa,	1 t. 2 c.	
Paint—		
Antwerp,	1 t. 10 c.	
Phosphorus—		
Barcelona,	8 c.	
Slag—		
Rotterdam,	114 t.	
Soda—		
Galatz,	11 t. 1	
Braila,	10 7	
Antwerp,	5 2	
Christiania,	20 1	
Odense,	10 7	
Jersey,	57 12	
Rotterdam,	47 5	
Bergen,	1 12	
Aarhus,	10 13	
Genoa,	17 17	
Soda Ash—		
Hamburg,	5 t.	
Konigsberg,	5 12 c.	
Newfairwater,	9 19	
Venice,	36 6	
Bergen,	5	
Sodium Bicarbonate—		
Christiania,	3 t. 4 c.	
Sodium Silicate—		
Genoa,	1 t. 7 c.	
Sodium Sulphate—		
Oporto,	2 t.	
St. Petersburg,	20 8 c.	
Sulphate of Lime—		
Genoa,	10 t. 9 c.	
Sulphur—		
Sarpsborg,	420 t.	
Christiania,	10	
Newfairwater,	40	
Superphosphate—		
Reval,	150 t. 3 c.	
Stettin,	1,250 1	
Frderikshavn,	206 5	
Genoa,	150 1	
White Lead—		
Stockholm,	1 t. 5 c.	
Oporto,	4	
Copenhagen,	2 1	

GOOLE.

Week ending September 5th.

Chemicals (otherwise undescribed)		
Ghent,	2 cs.	
Rotterdam,	49 cks.	
Coal Products (otherwise undes.)—		
Antwerp,	1 ck.	
Boulogne,	17 3 cs.	
Dyestuffs (otherwise undescribed)		
Ghent,	2 cks. 2 cs.	
Manure—		
Boulogne,	29 bgs.	
Pitch—		
Antwerp,	228 t.	

GRIMSBY.

Week ending September 8th.

Chemicals (otherwise undescribed)		
Dieppe,	20 pkgs.	
Hamburg,	1 cs.	
Coal Products (otherwise undes.)—		
Dieppe,	129 cks.	
Manure—		
Esbjerg,	206 t.	

THE CHEMICAL TRADE JOURNAL

AND

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

PROSPECTS OF COMPETITION IN THE NITRATE INDUSTRY.

ACCORDING to the latest telegrams from the Granadian Federation in South America, the serenity of the Chilian Nitrate Industry is not likely to remain long unruffled.

In speaking recently of the prospects of this industry, we pointed out that, in spite of the rapidly-increasing demand in Germany, there was every prospect of a very rapid increase in production, owing to the opening up of new nitrate grounds, and the efforts of the pre-existing companies to earn good dividends. The output of nitrate promises, however, to be still further increased by an extraneous and competing source of supply, located at Magdalena, in the Colombian States, where deposits of nitrate, in conjunction with iron pyrites, have been found. These deposits are estimated as amounting to more than seven million tons, and on account of situation and quality are well adapted for working in competition with the Chilian deposits. The inception of works in this locality and the consequent production of nitrate, would, in all probability, in a comparatively short time, lead to a decline in the value of nitrate, and so again bring into requisition the assistance of the Nitrate Combine.

There is, however, another way in which this combination may act on behalf of the Chilian industry. The so-called Nitrate King may not wait for competition to enforce co-operation, but may by the agency of the Combine acquire the new deposits in Colombia, and so amalgamate forces to the extinction of rivalry.

The influence such an action would have upon the interests of consumers is a debatable point. Undue competition will only lead to unremunerative prices, a state of affairs which cannot last long without provoking remedial measures on the part of producers. At the same time the Combine up to now has given no sign that it is likely to abuse its powers. So that if anything the maintenance of a fair price seems more desirable than a spell of cutting prices, succeeded by a period of uncertain supply and fancy values, to enable producers to recover themselves. The probable effect upon the sulphate of ammonia industry, in which production is not so easily controlled, is also worthy of consideration. In this connection the former of the above two contingencies would seem to be the more desirable. To judge by the experience of the past, it is not unlikely that steps to ensure the perpetuation of present prices will be taken.

THE SANITARY CONGRESS.

This Congress opened for a week at Liverpool, on Monday, under the auspices of the Sanitary Institute. The principal feature was the address of the President, Sir F. S. Powell, in the course of which he touched upon many points of interest. It certainly is a subject for regret that, in spite of all that has

been done to foster the application of the Prevention of Adulteration Acts, there should still be, in this comparatively small community, as many as forty-five districts having a population of some three millions, in which the Food Adulteration Acts are practically a dead letter. There are dangers to public health in many of the erroneous and misleading titles given to some articles of diet. For instance, the so-called egg powder, which is sold as a complete substitute for eggs. These compounds are moreover adulterated, as well as innocent of eggs, and infantile disease has been traced, to a considerable extent, to the use of such powders. In regard to chemical fumes and smoke there was little said that has not appeared in the report of the Chief Alkali Inspector. River Pollution served as a means for a mild eulogy on the Local Government Board. However willing the staff of the Board may be, and however foolish appeal to the Board of Trade under the Thames Conservancy Act may be, it would hardly be advisable to put more work upon the already much-over-taxed Local Government department. As it is, the Mersey and Irwell Joint Committee seems likely to find the staff of the Board more work than they can accomplish within a reasonable time. So that it is somewhat of a relief to find the Government are awaking to the inadequacy of the Board's staff, and have not put an additional burden upon their shoulders by making them arbitrators under the Thames Conservancy Act of this year.

It is an old saying that two of a trade never agree, and as it is with handicraftsmen, so it seems to be with sanitarians. The President's condemnation of back-to-back houses was received with acclamation, yet the President of the Municipal Engineers Conference expressed his opinion that for many reasons back-to-back self-contained houses were the best. Fortunately, however, there are many more important points upon which sanitarians are at one. Sectional meetings and excursions occupied the remainder of the week, and a conversation was held in the Walker Art Gallery on the Wednesday.

ANOTHER ELECTRO-CHEMICAL PROCESS.

A new process for the production of caustic soda and bleach by electrolysis, has recently been put up on trial at the works of the Aluminium Company, Oldbury, the process being that of Mr. H. Y. Castner.

The chief feature of the process is the application of an old idea in a new form, namely the use of a moving body of mercury as a cathode in such manner as to obviate the employment of a diaphragm. The abolition of the diaphragm is certainly an advantage, since the wear and tear of this usually essential part of the apparatus, constitutes one of the bugbears of the majority of processes. It is claimed that no hypochlorites are formed, and the process is, of course, continuous. Current reports of the process are favourable, but for the time being we prefer to abstain from any definite expression of opinion. Next week we may have something to say.

ENCOURAGING THE MANUFACTURE OF CITRIC ACID IN SICILY.—The Italian Government being desirous of encouraging the preparation in Sicily of citric and tartaric acids, especially the former, has issued a decree offering prizes to persons who shall open factories for the preparation of these acids in Sicily. The first prize is to be one of £500, the second of £350, and the third of £175 sterling. To obtain the first prize both citric and tartaric acid must be made, the former in a quantity of at least $\frac{1}{4}$ ton a day. Applications for the prizes must be made on Italian stamped paper not later than December 31st, 1895, and the works must be in operation not later than February, 1896, in which year the prizes will be distributed by the Minister of Agriculture. There are already two works in operation in the island.

POINTS IN FAVOUR OF HIGH FLASH BURNING OILS.

THE QUESTION OF INCREASED COST ANSWERED.

THE great increase in cost to poor consumers which must necessarily (?) follow the raising of the Government Standard to 100° F., constitutes one of the most powerful arguments of those who support the low-flash movement. This argument has been very decidedly answered in the course of an article communicated to the *Times* by way of a reply to the article on the petroleum trade recently published by the same organ, with which we have already dealt in these columns. It is a well-known fact that the Americans ship large quantities of high-test oil to England and Europe under the name of "White Rose" oil, which they recommend consumers to use. The following are their own words in regard to its merits:—

"Its fire test is so high as to make it the safest petroleum lamp oil in the world. Explosion is guarded against, and families can burn 'White Rose' oil with the same assurance of safety as they can gas. Its original cost is only a trifle more per gallon than the ordinary grades of lamp oil" (the italics are not theirs); "and if its greater safety, increased brilliancy, and freedom from smoke and smell be considered, 'White Rose' will be found in actual use to be far more economical. Every dealer who may be desirous of selling a really safe and reliable illuminant will find it to his advantage to procure 'White Rose' American lamp oil." [Its flash point is about 104° F. Abel, and for some occult reason is retailed frequently at 1s. per gallon. There is more than a "trifle" of profit, therefore according to the stated cost of production.—E.D. C.T.f.]

Reference is also made to the misleading and untrue statement that Scotch shale oil is different in regard to light paraffins from America. The two following extracts show how wilfully wrong the *Times* statement is. Unfortunately for them, the low-flash partisans again convict themselves out of their own mouths as it were.

James Young, the founder of the paraffin and petroleum industries, in the *Times* of February 8, 1864, says:—

"Paraffin oil, as distilled from coal, is a mixture of a great many bodies, but which for practical purposes may be said to contain the following four ingredients:—(1) a highly volatile liquid; (2) the paraffin oil of commerce; (3) heavy or lubricating oil; (4) solid paraffin. It ought to be distinctly kept in view that the volatile substance first mentioned should be carefully separated from the illuminating oil, so as to render it safe for domestic use."

Mr. Boverton Redwood, who is now the honorary secretary of the Petroleum Defence Committee, in a lecture which he delivered to the Sanitary Institute, in January, 1892, on the domestic uses of petroleum, said:—

"The object of the refiner of oil is, broadly speaking, to eliminate on the one hand those products which are too inflammable, and on the other hand those which are too heavy to burn freely. The practical results of the operation are:—(1) Petroleum spirit, separated on account of its too great readiness to take fire; (2) petroleum oil, suitable for use in lamps; (3) lubricating oils; (4) paraffin for candle-making. This simple process of distillation furnishes the refiner with an effective means of dividing the crude oil into the various commercial products he desires." He stated also that—"Shale yields a crude oil from which the refiner obtains by fractional distillation a parallel series of products."

The language of these two authorities—the one in 1864 regarding Scotch crude oil, and the other in 1892 regarding both crude petroleum and crude shale oil—it will be seen, is almost identical.

One or two other citations may also be given. Dr. Lyon Playfair—now Lord Playfair—told the Select Committee in 1867 that "both petroleum and paraffin oils can be made equally safe or equally dangerous. Oils from coal or shale can be made as light as those from petroleum, and no doubt would be, if safety were left out of consideration."

Mr. Charles Humphrey told the Select Committee of 1872, "The higher igniting-point of our home-made oil is due entirely to the fact that we take out sufficient spirit, which the Americans do not."

Mr. William Beal Marston told that Committee—"Crude coal oil and crude petroleum are much alike as regards danger. For our own credit's sake we take off the spirit to make the oil safe. If the Americans did the same, then both safe petroleum and safe coal oil would take a higher place, as there would be no fear of danger."

The specific gravity of ordinary American burning oil runs from 790 to 805; the specific gravity of Scotch oils runs from 795 to 805; while Russian ordinary burning oils have a specific gravity of 820 and over; and both the Americans and the Scotch make excellent burning oil, having a specific gravity from 822 to 832.

In view of the foregoing, what comes of the assertion contained in the article—that the lightest constituents of Scotch crude oils are "heavier than they need to be for safety, and heavier than the oils recognised in all civilised countries as fit for domestic purposes"?

In regard to the argument that the present agitation is a new and interested move on the part of the Scotch oil industry the following is instructive:—

This cry about the Scotch industry, its action, its money, and its influence, is not a new one. It was first raised by those interested in American petroleum, in the columns of the *Daily Telegraph*, in 1868, where the Scotch trade was represented as a ruined industry, craving for indirect protection. The cry was again heard in 1872, when petroleum trade witnesses asserted before the House of Lords' Committee that the Petroleum Acts of 1862 and 1868 were due to Scotch initiation and meant protection to shale oil "by ousting American oils." The facts regarding petroleum legislation are simply and briefly these:—Accidents in the use of petroleum lamps—some of them with fatal results—had their beginning soon after the introduction of petroleum oil from America, about the end of 1861. Inquests were held in London in January, March, and August of 1862. Dr. Harley and Dr. Odling gave evidence as to the dangerous character of oils used with flash-points considerably under 100° Fahrenheit. Coroners and coroners' juries called attention to these dangerous oils, usually sold as best paraffin oil, and they recommended legislative interference for the public safety.

The Scotch mineral oil distillers are free traders; they neither wish nor expect protection, directly or indirectly; and they do not believe that raising the legal standard to 100° Fahr. as it stood originally in the Act of 1862, would, in competition, add anything to the price of the oil to the consumer. They do not ask that low grade petroleum, either from America or from Russia, should be excluded from the country, but if the Government consider it necessary to have further legislation to regulate the traffic in such oil, they do claim that all oil, whether of Scotch, American, or Russian origin, which has a flash-point over 100° Fahr., Abel test, and which has proved itself during nearly half a century to be perfectly safe, shall not be confounded in any Bill with oil of 73° flash-point, and branded as an inflammable liquid that requires such treatment as is applicable to explosives like gunpowder or dynamite, but that the line of exclusion from the operation of any future legislation be drawn at 100° Fahr., Abel test, instead of at 150°, as proposed in the Bill of 1891.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending September 8th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'3	8'59	0'32	Nil.
South Metropolitan Gas Co.	6	16'38	10'15	0'43	Nil.
Commercial Gas Co. ..	2	16'4	8'35	0'2	Nil.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended Sept. 18th, 1894, has averaged 13'88 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Aug. 1894.	Sept. 1894.			Weight.	Volume.
Meadow Lane...	18, 23, 30.	4, 10.	13'15	1'24	57'05	'07
New Wortley...	14, 24, 29.	5, 11.	15'78	1'05	48'90	'06
York Street...	16, 21.	1, 7, 12.	10'66	1'48	48'90	'06
Average at Works	..	..	13'88	1'19	48'90	'06
Average at East Parade	..	..	14'24	0'86	57'05	'07

During the month the average illuminating power of the Leeds Gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 hole, 18'0; standard batswing, 18'7.

TESTING PYRITES.

AN experimental inquiry has recently been made by Mr. T. S. Gladding into the reliability of the various methods of estimating sulphur in pyrites. He finds the fusion method gives high results, and the bromine method without the removal of iron low results. As the result of his investigations and of many comparative analyses made during a period of many years he recommends the following method of procedure:—

1. Grind to an impalpable powder, dry at 100° C., and keep in well-corked bottles. Ten to fifteen minutes drying is sufficient.

2. Weigh one gram, introduce into beaker, cover with watch-glass, and add ten cc. bromine solution, mix by rotating beaker and allow to stand ten minutes in the cold. Add ten cc. nitric acid, mix as before, and allow to stand ten minutes longer in the cold. Finally place the beaker on a water-bath, containing cold water, heat slowly to boiling, and when solution becomes quiet remove glass after rinsing and evaporate to dryness. Add ten cc. hydrochloric acid, keeping the beaker covered with a glass, and when violent action ceases, again remove the glass after rinsing, and evaporate to dryness once more. Add one cc. concentrated hydrochloric acid and fifty cc. hot water, digest until solution is complete, filter and wash with hot water. The filtrate, about 100 cc., is now saturated with a slight excess of ammonia allowed to stand hot for ten minutes. The precipitated ferric hydroxide is filtered and washed five or six times more on the paper with boiling hot water, the filtrate acidulated with hydrochloric acid in slight excess, heated to boiling and fifty cc. barium chloride solution added, one drop per second to the boiling liquid. The solution is allowed to stand over night, filtered, washed, and ignited, the precipitate of ferric hydroxide is also dissolved in dilute hot hydrochloric acid heated to boiling, and ten cc. barium chloride solution added. It is allowed to stand over night and the barium sulphate thus obtained added to the main precipitate. One filter paper can be used for the two precipitates.

The bromine solution is prepared by dissolving seventy-five cc. of potassium bromide in fifty cc. water, adding fifty cc. bromine, stirring and adding water to 500 cc. The bromine will nearly all dissolve. Another form of bromine solution used by some is made by saturating aqua regia with bromine. The first solution is the more certain, however, to oxidize all the ore without separation of any sulphur. The barium chloride is in ten per cent. solution.

THE GERMAN BEET SUGAR INDUSTRY.

SPEAKING of this industry, Consul-General Dundas says German sugar is made entirely from beetroots cultivated by farmers who have an interest in the sugar factories. The average yield of sugar in the beet is from 14 to 15 per cent., and in order to secure a good yield the roots destined for culture are selected solely with regard to the percentage of their yield of sugar. Therefore the excellence of the root in regard to yield and the production of the seed is a matter of the first importance. The plant most in demand is the little Wanzleben. The factories consume 200 tons to 1,000 tons of beetroot daily, according to size or working capabilities. The process is as follows: The roots cut into strips are edulcorated with warm water, and the juice thus obtained is clarified by means of lime. The residue left is then subjected to a process by which all moisture is extracted by means of presses and utilised as provender, which has been found very serviceable. A second and third purification with carbonic and sulphurous acids follow; and the syrup and crystallisation operations by evaporation and boiling give the final production of the manufactured article, which is separated by centrifugal machinery from the syrup. The deposit left from this process is the molasses which is so much used in the manufacture of spirit. The number of factories in Germany in 1891 was 406 equipped with 4,717 steam engines of 68,691 horse-power, using up 10,623,319 tons of beets, and yielding 24,273,784 cwt. of sugar, and 4,815,922 cwt. of molasses. The quantity exported is shown in the following latest available figures:—

Description of Sugar.	1892.		1891.	
	Cwts.	£	Cwts.	£
Raw	7,097,584	5,232,067	8,732,530	6,321,936
Crystallised ..	2,372,106	2,034,994	3,040,276	2,851,274
Refined	3,025,012	2,734,083	3,183,502	2,905,645

DESTRUCTION OF A PETROLEUM STEAMER.—The British ship *Glenesslin*, of Liverpool, has been destroyed by fire. She was being loaded with petroleum for Hong Kong at Brooklyn when, by some accident, fire broke out on board, and owing to the inflammable nature of the cargo all attempts to save the vessel were ineffectual. She was completely burned, the loss being estimated at 75,000 dollars. The *Glenesslin* was of 1,821 tons register.

Paper-Makers' Column.

THE CHEMICAL PULP PROCESS IN THE STATES.

THE following is a description given by Mr. Lauza of the manufacture of paper from wood pulp, as carried on by the Russell Paper Co., at Lawrence, Mass., U.S.A. The kinds of wood used are poplar and spruce. The wood is cut into chips, and these are mixed with a liquor which attacks all the ingredients of the wood except the cellulose. This liquor is put, with the chips, into a boiler or digester, into which steam is introduced and in which the mixture is cooked for a suitable length of time. The mixture is then drawn off and washed, and the water and impurities are thrown away, and pure cellulose is left. This, mixed with water, constitutes the pulp. To make a satisfactory product, two different kinds of pulp, sulphite pulp and soda pulp are used, which are mixed in proper proportions. The sulphite pulp alone would make too harsh a paper, while soda pulp alone would make too weak a paper. The first is used to give strength to the product, and the second softness and delicacy. The sulphite pulp is made by treating the chips with an aqueous solution of sulphite of lime, the chips, liquor and steam being mixed in a spherical boiler which is kept rotating during the cooking. The soda pulp, on the other hand, is made by boiling the chips in a solution of hydrate of soda, and, instead of using a rotating boiler, the chips and the liquor are placed in a vertical cylindrical vessel called a digester. This vessel is provided with a perforated plate near the bottom, and on this plate are placed the chips. The steam is then introduced below the plate, and the liquor is caused to circulate through the chips, during the cooking operation.

In both cases, after the cooking operations are completed the pulp is pumped up to a beating machine, where it is thoroughly mixed, and the fibres are drawn out by causing them to pass between revolving beaters. Here it is also more thoroughly washed than it was after leaving the boilers or digesters.

In the case of the soda pulp it is sometimes bleached in the troughs in which the washing and beating is done.

After the pulp leaves these troughs it is made to pass through a series of very fine screens of metal plates having a series of thin slats. Thence it goes to the wet machine, which is a trough through which a continuous flannel roll is made to pass. The pulp adheres to the flannel and the water drops off. Then the flannel, with its layer of pulp, is squeezed between several sets of rollers from which the pulp layer emerges as a kind of thick paper, but destitute of consistency. Then, if it has not been previously bleached, it is conveyed on trucks to the bleaching pots. In these it is placed, together with the bleaching liquid, and the whole is stirred by agitators. From here, when the bleaching is finished, the pulp is conducted to a room with a perforated floor, where it is washed by a stream of water from a hose, leaving the bleached pulp on top of the false floor.

Next follows the mixing operation. In the trough of the mixing machine are placed the sulphite and soda pulp in the desired proportions, together with any other ingredients that may be desired, such as clay to make the paper take ink, sizing, resin soap, etc. By suitable machinery the materials are caused to travel round and round in this tank until they are thoroughly mixed. For the fine papers a Jordan engine is used instead.

After this the pulp is ready for the paper machine proper, which may be a Fourdrinier or a cylinder machine. In either case the pulp is caused to adhere to a layer of cotton or wool, which forms, as it were, an endless belt, the water dropping off, and the pulp being carried along on this cloth, gradually passes between pairs of rolls, the first pair usually making the water mark. The pulp then reaches the calendar rolls, inside of which steam circulates. Here the pulp is dried, and, as it were, ironed, and receives a gloss. It is then rolled and subsequently cut into sheets of any desired size.

The foregoing is a very brief description of the principal steps only. The following important details have still to be mentioned:

(1) When the wood is received at the mill the bark and any other roughness are removed by a special machine, made somewhat on the principle of a milling machine. Any large knots are then drilled out, a machine being also provided for this purpose. The log is then placed in a machine containing a set of revolving knives which chips off the wood obliquely to the grain. From this machine the chips are carried by belt-carriers to the upper part of the building, where they are led to hoppers over the boilers or digesters respectively.

(2) The sulphite of lime solution is made as follows: On an upper floor are three closed tanks, arranged on three different levels, and so connected that a liquid in the upper one, when it reaches a given level, will overflow into the second one, and in like manner from the second into the third. When it reaches a given level in the lowest tank it overflows into an open tank placed at a still lower level, and directly over the boilers. Above the system of three closed tanks is another open tank containing lime water, which flows continuously from this tank downwards through the entire system. In the basement is a fur-

nace for burning sulphur, and thus forming sulphur dioxide, and the passage through which this gas escapes from the furnace leads into the lowest of the system of three tanks, then into the next and then into the upper one, from which it is pumped out by a vacuum pump, which draws the sulphur dioxide and the accompanying nitrogen through the solution in the three closed tanks. The sulphite of lime thus formed overflows into the lowest open tank, from which it is delivered by means of a hose to the boilers.

(3) The hydrate of soda is made by boiling soda ash and lime water by means of a current of steam passing through a coil of perforated pipes within the boiler. The hydrate of soda is drawn off, and the carbonate of lime is thrown away.

(4) The material washed out from the pulp in the soda process is, of course, very dilute, but it is nevertheless, desirable to reclaim and to re-employ the soda. For this purpose the liquid is reduced in a Varyan or other suitable evaporator to the consistency of molasses, after which it is placed in a revolving drum, open at both ends, one end communicating with a furnace, and the other with the chimney. The inside of this revolving drum is conical. The material is thus burned, and comes out as a black ash, consisting of soda ash, carbon and a little sand. This black ash is leached with water, which dissolves out the soda ash, leaving behind the other ingredients, and we thus have again a solution of soda ash from which to make the liquor.

PRESERVING IRON AND STEEL FROM RUST.

IN the course of a Paper read before the American Society of Mechanical Engineers, the following description of the Gesner rust-proofing process is given. This process for the preservation of iron and steel is of comparatively recent introduction, and, like the Bower-Barff process, forms a coating from the metal itself that it is depended upon to protect. While the Bower-Barff process forms a magnetic oxide coating, the Gesner process claims to change the surface of the metal into a compound of hydrogen, iron and carbon, which is designated as a double carbide of hydrogen and iron; analysis of treated articles showing the presence of hydrogen in quantities from two-tenths of one per cent. and upwards. This coating does not scale off by mechanical injury (articles treated can be bent cold to an angle of 45 deg. without injury) does not alter the dimensions of the articles treated, screw threads and nuts running together as freely after treatment as before; while the Bower-Barff process when carried to the point of forming a heavy coating of magnetic oxide, materially increases the size of the parts, and has to be allowed for in fitting up of finished and jointed parts, such as hinges and loose joints. A claim made for articles treated by the Gesner process that they are unaffected in strength appears to have some foundation. The record of a number of tests made at Philadelphia on an Olsen testing machine show that the wrought iron samples were comparatively unaffected in strength by the treatment, while the steel articles showed a loss in strength of about five per cent., and a gain of five per cent. in elongation, evidently from the annealing action of the muffle. Cast iron pipe treated shows that the pores of the iron are filled and the strength materially increased. Cases reported show an increase in bursting pressures of over 100 per cent.

The colour of the treated articles is a fine deep blue-black. Tempered articles, such as springs, bayonets, edged tools, etc., cannot be treated, but in some cases articles can be hardened and tempered after treatment. The process does not necessitate the use of skilled labour; after being established ordinary working men are all that is requisite. The process is adaptable wherever tinning or galvanising are employed to withstand atmospheric effects, and is materially cheaper than those methods. Among the adaptations for this process can be named: office railings, grilles, gates, wrought, cast and malleable iron pipes and fittings, steel and iron shingles, corrugated sheets for roofing, polished wrought-iron pipe for bedsteads, steam radiators, builders' and art hardware, architectural ironwork of all kinds, gun fittings, etc. These articles can be treated in small lots for prices from four and a half to seven cents per pound, and large pieces wrought-iron pipe in 20 feet lengths in quantities will not cost over one cent. per pound, including manufacturer's profit. One of the principal articles thus far treated is a clock tower on a storage warehouse on Schermerhorn-street, Brooklyn, the clock dials of which are of wrought-iron scroll work, 16ft. in diameter. The surface of the treated articles appears to facilitate the spreading and adhesion of paint if any is subsequently required on the structure.

The articles must be cleaned from scale to secure a good result, though the removal of oil and grease due to machining processes is not necessary. The apparatus and process of treatment is, viz.:—Two ordinary clay gas retorts of any required length from 7ft. to 20ft. or more are set side by side with a furnace and grate below and between them, same as a gas retort setting. Suitable doors are fitted to one or both ends of the retorts as used for gas retort work. These retorts are heated to 1,000 deg. or 1,200 deg. Fah., as may be determined by the

character of the articles to be treated. The articles are placed in the retorts and exposed to the heat for twenty minutes, or until they attain approximately the heat of the retort or muffle, when steam at low pressure is admitted to the inside of the retort through an iron pipe lying on the bottom of the retort, and called a hydrogen generator, which decomposes the steam, hydrogen being set free, which fills the retorts, the surplus pressure passing out by a purge pipe sealed in about $1\frac{1}{2}$ in. of water to prevent ingress of air to the retorts. This steam treatment is kept up for thirty-five minutes, when a small quantity of naphtha—a pint or more—is injected by gravity into each retort and allowed to flow for ten minutes. The hydro-carbon is then cut off, and the steam which has been allowed to flow during the whole operation is continued some fifteen minutes longer. The whole time employed is therefore an hour and twenty minutes for articles of ordinary size and weight, such as builders' hardware, &c. The articles remain in the muffle sealed from air until the heat has fallen to about 800 deg. Fah., when they can be removed without danger of scaling. Ornamental objects, art hardware, &c., while hot are given a bath in whale or paraffin oil, to render them even in tone, prevent finger marks, &c. The process appears to me to be almost identical with the Bower-Barff, with the exception of the use of the naphtha, which gives a foundation to the claim for the formation of a carbide that hastens the process; the time of treatment being materially less in the Gesner process than by the Bower-Barff to get the same thickness of coating. A number of plants for the working of this process are in operation in various parts of the United States, the principal one, the South Brooklyn Rust-proof Iron and Steel Works, 176, Sullivan-street, near Atlantic Basin, South Brooklyn, has a capacity of two tons daily output of small articles like builders' hardware, and six tons of pipe up to $7\frac{1}{2}$ ft. in length, and can treat articles up to 20 ft. in length. Members of the American Society of Mechanical Engineers are welcome at any time to inspect the works and product, Mr. Geo. W. Gesner, proprietor, being in charge of the plant. A number of samples of rough surface and polished work are submitted for inspection.

TIPS FOR TRADERS.

COPPER and **BLOCK TIN** figure among the imports of Bulgaria. Great Britain is the chief source of supply.

CAUSTIC SODA and chemicals are also largely imported. The higher prices ruling lately have however caused a falling off in extent.

A **NEW FOUNDRY** has been established at Olonets, Russia, by the Paolovsky Foundry Company.

CAMPOR occurs in considerable quantities in Borneo, but there is no European enterprise as yet working this or the other vegetable products, such as gutta-percha.

SALINE DEPOSITS of great extent, which have been found in the district Astapa, State of Tabasco, Mexico, are about to be worked by an influential American Company.

MATCH-MAKING CHEMICALS are enjoying a steady and increasing demand in Japan. The Korean disturbances are affecting the shipment of chlorate of potash just at present however.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is as well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:

SOLUBLE GLASS, with an admixture of glue, imported into Russia, is subject to a duty of 2 roubles per pood.

INSECTICIDAL GLUE, for coating trees, made from tarry substances and mineral salts, is dutiable at 40 copecks per pood.

TARTAR EMETIC SUBSTITUTES have a duty of 1R 50 copecks per pood gross levied upon them.

PARANITRANILINE, not constituting an aniline colour in itself, is subject to precisely the same duty as the above.

CARBOLIC ACID, partly or wholly purified, is dutiable at R. 1.50 per pood.

PHOSPHITE, a mixture of talc and copperas, is subject to a duty of 35 copecks per pood gross provided the copperas does not exceed 10 per cent.

ZINC DUST is dutiable at 40 copecks per pood.

DIRECT BLACK, being a chemical compound and not a mere extract of dyewood when imported into the United States, is datiable at 25 per cent. *ad valorem*.

LANAE, a preparation of wool grease substantially free from alkali, is subject to a duty of 25% *ad valorem* as a rendered oil.

POSTAL CHANGES.

PARCEL POST to **JEDDAH** is now in operation.

The postage is as follows: For the first two pounds, 2s. 11d.; for each additional pound or fraction of a pound, 5d.

No parcel may exceed 11lbs. in weight, 3ft. 6in. in length, or 6ft. in length and girth combined.

No parcel may contain a letter or communication of the nature of a letter, any explosive or dangerous article, or any liquid, unless securely packed in a proper case. Arms, ammunition, salt, leaf-tobacco, imitations of the cigarette papers of the "Regie," hachich, books, newspapers, &c., obnoxious to the Ottoman Government, vines and parts of the vine, and plants and parts of plants are also prohibited. No parcel may exceed £50. in value.

Parcels for Jeddah are included in the parcel mails for Egypt made up in London every Wednesday morning, and are conveyed by the Peninsular and Oriental Co.'s steamers from the Thames.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of August, 1894, as compared with the same month of 1893:—

ALKALI.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Russia	41,429	24,297	16,386	8,354
Sweden and Norway	15,317	17,998	3,947	3,505
Germany	15,908	8,472	6,858	3,545
Holland	8,294	6,439	2,105	1,567
France	4,226	4,398	1,654	1,757
Spain and Canaries	19,559	20,582	8,799	8,789
Italy	20,808	18,001	7,931	7,057
United States	219,595	182,843	62,655	42,452
Australasia	8,323	14,143	3,357	4,543
British North America ..	17,942	15,403	5,988	4,121
Other countries	75,633	76,998	27,652	25,288
Total	447,034	389,574	147,332	110,978

BLEACHING POWDER, ETC.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
United States	45,985	54,971	19,440	21,563
Other countries	41,065	36,567	16,341	14,040
Total	87,050	91,538	35,781	35,603

THE STATE OF THE CHEMICAL TRADE.

CHEMICAL, white lead, and cement works are still slack in the Tyne and Wear districts, though there are signs of improvement in the two former. About Burnley and Accrington the calico printing and dyeing trades continue depressed. Dyers and finishers also are very slack in the Manchester district. There is an improvement in the chemical industry at Northwich, but the salt trade remains unaltered. The stoppage of two large plate glass manufactories has unsettled employment in St. Helens. There is as yet no sign of improvement in the chemical trade at Widnes. Depression still prevails in the chemical industry about Winsford. There is a slightly better tone in the salt trade, however. At Barrow and district, pulp and paper makers are still busy. The same may be said concerning the salt trade at Middlesbrough. Seed crushing mills at Hull are giving slightly better employment. The paint and colour trade is rather quieter, but employment keeps fairly good. Things are very much the same with oil, colour, and paint makers about Wolverhampton. The galvanised and enamelled iron trades are about the most steady of South Staffordshire industries. Trade is good with paper-makers in the Derbyshire district, and moderate with chemical workers. In the Bristol district the oil, paint, and colour trades are moderate. Chemical works are restarting in and around Cardiff, so that things look more promising. Patent fuel works are very busy just now.

THE STARCH INDUSTRY OF RUSSIA.

STARCH is manufactured both in north and south Russia, but chiefly in the north in the districts near Moscow. In the north, wheat and potato-flour are the usual basis; in the south, rice and maize. For some years past the production has been considerable, and increasing, and the importation has been falling off. In 1880 about 3,000 tons of starch were imported into Russia, and about 10,000 tons were produced in the country; but in 1890 the importation had fallen to less than 2,000 tons, whilst the estimated production had reached about 25,000 tons. Since 1890 the importation has continued to decrease, and though some assistance will be given by the reduction of duty in the new tariff, the trade cannot recover anything like its former importance.

The following are the estimated values of the raw material and of the manufactured starch, and also approximate selling prices at the works in north Russia:—

Articles	Prices, Raw Material		Cost Price, Starch.		Selling Price.	
	R.	c.	R.	c.	R.	c.
Rice	1	65	3	40	4	80
Maize	0	80	2	40	3	20
Wheat	1	00	2	50	3	10

The demand for dextrine is very small, the importation apparently not exceeding 30 tons, and the production of dextrine and leikome, together, is only estimated at about 350 tons.

The importation of potato-flour is practically *nil*, except when there is a failure of the potato crop in Russia.

CHEMICAL TRADE WITH JAPAN.

THE official report on the trade of Osaka and Hiogo for the past year states that the demand for chemicals is an increasing one. This is shown to be substantially true by the following returns of the chemicals imported last year as compared with 1892.

Articles.		1893	1892.
Bicarbonate of Soda	Tons.	918	695
Caustic Soda	"	1,872	1,719
Salicylic Acid	Lbs.	51,117	35,616
Carbolic Acid	"	—	81,191
Chlorate of Potash	"	2,914,198	1,737,179
Potash	"	23,015	40,600
Phosphorus (Amorphous)	"	160,300	105,347
Aniline	"	322,872	314,724
Logwood Extract	"	796,393	670,901
Vermillion	"	48,145	51,483
Oilcakes	Tons.	15,415	24,009
Paraffin Wax	Lbs.	2,373,753	2,298,551

Iron.—The question whether or not Japan is to become self-supplying in the matter of iron possesses very great interest, and the following summarised translation appearing in a local foreign journal of a speech delivered by Mr. Wada, ex-Director of the Mining Bureau, at a meeting of the Geographical Society on January 25th last, bears on this point:—

"Mr. Wada maintained that Japan is emphatically rich in iron ore. Recent investigations by Mr. Kuwabara have proved that China possesses ample stores of the valuable mineral, and it was already known that Korea and Russian Siberia are similarly fortunate. It might have been inferred that the same was true of Japan; and Mr. Wada says that there never would have been any doubt of the fact had not the deposits been deep below the surface, and had not the ore differed in quality from that of England, France, and Germany. In short, engineers have been greatly deceived, as they ought not to have been, had they taken due note of the deflections of the magnet. Almost everywhere throughout Japan, iron is found imbedded in granite and calcareous rocks. The total supply visible at Kamaishi in Rikuzen, Sennin-zan in Akita, and Akatami-zan in Echigo is over 30,000,000 tons, and fresh discoveries of ore are of daily occurrence. On the other hand, Japan's annual consumption of iron is from 80,000 tons to 130,000 tons, and her needs must greatly increase for military, naval, and railway purposes. It is true that the attempts made by the Government in former years to establish iron-smelting works at Kamaishi were a failure, but the causes are to be sought, not in any natural difficulty, but in the facts that the enterprise was premature, and that the magnitude of its inception was out of proportion to the locality. The remoteness of the place entailed heavy expense on account of transport. In those days it cost 4'48 yen to carry a ton of metal from the works to Tokyo, whereas the same transport can now be effected for 1'80 yen. Coal for smelting, also, could not then be obtained under 14 yen per ton, while now it is procurable for less than 5 yen, delivered at the works. That the enterprise can be made profit-

able under proper management is demonstrated by the experience of Mr. Tanaka, whose foundry, placed at the very spot where the Government works were, flourishes well. He is not provided with first-class engineers or other experts, yet his opportunities are such that a ton of iron costing only 14 yen before shipment at Kamaishi sells in Tokyo for 22 yen to 23 yen."

Petroleum.—The following record of the petroleum market shows how Russian enterprise is gaining ground:—

The year opened with only 15,000 cases in stock, but large cargoes arrived during January; a lot of 5000 cases of Atlantic "spot" brought 1 dol. 87 c., the highest price recorded for 2 years.

In consequence of this, holders refused to sell under 1 dol. 78 c. to 1 dol. 86 c., and the market closed firm.

Following on this there were considerable settlements of American, and shortly after the tank steamer *Couch* brought 4,200 tons (about 150,000 cases) of Russian, selling at 14 c. per gallon in second-hand tins.

After a drop in prices, rates went up in May, there being a further rise in July. Strong and advancing in August, the market weakened for a time, but improved in November, Atlantic fetching 1 dol. 85 c., Russian case oil 1 dol. 70 c. per case, and tank oil 14'3 c. per gallon.

The year closed weak. A considerable local business is done by Japanese, who purchased low classed and damaged oil, both American and Russian, refine it up to 150 degrees test, and sell it at a fair profit.

The table appended shows the deliveries of Russian and American petroleum in Yokohama during last and the previous year:—

Month.	1892.		1893	
	American Oil.	Russian Oil.	American Oil.	Russian Oil.
	Cases.	Cases.	Cases.	Cases.
January	165,810	44,346	69,329	63,427
February	110,921	30,905	77,573	59,111
March	110,007	34,995	94,317	45,351
April	90,500	29,539	66,767	55,817
May	82,555	26,219	77,291	44,554
June	95,961	41,138	79,026	45,077
July	99,821	45,342	88,447	48,685
August	142,055	55,619	80,260	51,954
September	124,140	51,042	111,755	78,945
October	139,719	56,743	124,296	119,087
November	163,679	83,554	63,994	187,759
December	207,456	76,192	52,934	157,589
Total	1,532,624	575,634	985,989	957,355
Grand total	2,108,258		1,943,344	

Sanitation.—The question of radical and much needed improvements in the drainage systems of Osaka and Kobe is receiving careful attention. The authorities of the former city have come to the conclusion that faulty sewerage is a prime cause of constantly-recurring zymotic diseases, and that no permanent relief is obtainable by the annual expenditure of large sums of money for sanitary purposes.

It is, therefore, proposed to change the entire sewerage system at a cost of about 700,000 dol. The works will necessarily be of a very extensive nature, and are calculated to occupy about five years. The approval of the City Assembly has not yet been obtained, but no serious opposition is anticipated.

DISGUISED ALCOHOL.—A vendor of hop beer supposed to be non-intoxicating was convicted at Lancaster on Saturday, last week, for selling intoxicating liquor without licence. Samples of a Morecambe vendor's hop beer had been analysed at Somerset House, and were found to contain 3'4, 4'34, and 2'3 per cent. of alcohol, while the law only allows 2 per cent. The drinks sold as teetotal beverages had been obtained locally containing 10 and 12 per cent. of alcohol, whereas beer only contains 7 or 8 per cent. Where's Sir Wilfrid?

THE PETROLEUM INQUIRY COMMITTEE.—The report of the Select Committee appointed to inquire into and report upon the law relating to the keeping, selling, and conveyance of petroleum, and other inflammable liquids, including the precautions to be adopted to prevent the sale of dangerous lamps for use with inflammable liquids, has been issued. The Committee express the opinion that at this late period of the session it will not be in their power to conclude their investigation. They have, therefore, agreed to report the evidence already taken to the House, and recommend that a Committee on the same subject should be appointed in the next Session of Parliament.

ANSWERS TO CORRESPONDENTS.

G. C.—By letter.

LUX.—Yes. From the Government booksellers, 10½d., or 1s. 2d. post free.

CRESUS.—It is rather late. You will see the answer you want in this week's issue.

H. T.—The address has changed recently; it is now Whitecross-street, E.C.

A. CO.—We are much obliged for your offer.

HYGIENE.—We give those that have been published, but the list is not completed yet.

THE STUDY OF INDUSTRIAL DISEASES.

SPEAKING on this subject at the Sanitary Congress this week, Dr. Arlidge, of Stoke-on-Trent, called attention to the slight regard which had been paid hitherto to the association of disease with occupations, as instanced in the loose way in which the terms phthisis, consumption, chronic bronchitis, etc., were made use of in returns of deaths among persons engaged in various trades. However, recently industrial disease had been largely brought to the front, in consequence mainly of inquiries instituted by the Government into the causes of the heavy mortality and sickness found to prevail among the workpeople employed in many of the leading manufactures. The evidence collected pointed to great neglect of sanitary precautions up to the present day, on the part both of employer and employed. What was essential to both parties was that they should be imbued with the teachings of sanitary science. To impart education of this kind was the purpose of the Sanitary Institute, and happily it had been kept steadily in view. The whole kingdom was at this time fully aroused to the necessity for the adoption of legislative measures to remedy the well-attested evils of manufacturing processes, and to rescue workmen from sickness and premature death. The present Home Secretary had shown the greatest alacrity to introduce such measures, and likewise to gain the fullest information respecting the causes of illness, especially in the class of occupations he had, in his official position, classified as dangerous to health and life. But his efforts must be followed up by a movement which should demonstrate not only what were the sources of industrial disease, but also what were its remedies.

Trade Notes.

PERSONAL.—We learn that Mr. F. W. Harris, of Swansea, has been appointed successor to Mr. Moss as chemist at the Burnley Gas Works.

MEMORIAL TO JOHN DALTON.—A movement is on foot to erect a memorial stone at the cottage in which the great Dr. John Dalton, the founder of the atomic theory, was born.

REDUCING COAL FREIGHTS.—Reductions in coal rates varying from a penny to fourpence per ton, according to distance, will shortly be made on the Great Western system to Swansea.

DEUTSCHE GOLD UND SILBER SCHEIDEANSTALT.—The directors of this company at Frankfurt on Maine announce a dividend of 15%. The profit for the year is M.1,053,746 against M.1,171,154 last year. The returns of the new gold extraction works have not been announced yet.

DELAYING THE USE OF FREE ALCOHOL.—The delay of the Secretary of the U.S.A. Treasury in issuing the regulations to govern the use of free alcohol has caused considerable disarrangement of business, and urgent appeals have been sent to Washington, asking that speedy action be taken.

RENDERING CELLULOSE UNINFLAMMABLE.—According to some recent experiments the following substances render cellulose specifically uninflammable: Ammonium sulphate, ammonium phosphate, ammonium chloride, calcium chloride, magnesium chloride, zinc sulphate, stannous chloride, alum, borax, boric acid, and aluminum hydroxide precipitated from sodium aluminate.

ENGLAND REGAINS THE LEAD IN PIG IRON PRODUCTION.—It is a notable fact that the pig iron production of the United Kingdom is again above that of any other nation. The United States was in front, but it has fallen back. In the first six months of this year the United Kingdom produced 3,700,000 tons of pig iron, and the United States only 2,700,000 tons.

CLASSES IN BACTERIOLOGY.—The usual courses of Bacteriology held at King's College, London, are again announced. There are two courses. One of General Bacteriology, comprising illustrated lectures and practical work, and another on the Bacteriology of Fermentation, also including lectures and practical work. The classes are held respectively on Monday and Wednesday evenings. The latter course is specially suited for brewers, chemists, and analysts. Further particulars and syllabus can be had from the office of the *Journal*, or R. T. Hewlett, M.D., Bacteriological Laboratory, King's College, London.

CURTAILING THE PRODUCTION OF SUGAR.—The American Sugar Company have closed one-half of the refineries under their control, and they announce that the remainder will be closed in a fortnight's time. The cause of this stoppage is to be found in the extraordinary supply of refined sugar now in stock in the country.

PROPOSED RAILWAY EXTENSIONS IN CHILE.—It is stated that overtures have been made to the Nitrate Railways Company by the Chilean Government for the extension of the Nitrate Railways to Bolivia, and that in the event of the extension being made the Chilean Government will guarantee 5 per cent. on its cost.

THE LEIGH TECHNICAL SCHOOL.—Last Wednesday afternoon the Earl of Derby opened a technical school and free library at Leigh. The town adopted the Free Libraries Act about two years ago by a majority of ten to one, and the technical school was rendered necessary on account of the vast increase in the number of science and art students. The building has cost £13,000. The town was gaily decorated with bunting, and considerable enthusiasm prevailed.

RESTRICTING SALE OF CARBOLIC ACID.—It is reported that the Pharmaceutical Society intends shortly to busy itself about instituting restrictions on the sale of carbolic acid. Insistence upon the article being sold only in blue ribbed bottles "labelled" poison is said to be one of the restrictions aimed at. It is not unlikely, however, that an attempt will be made to get this article included in Schedule A of the 1860 Pharmacy Act.

INFLUENCE OF TEMPERATURE ON DENSITY.—While endeavouring to determine the density of melted magnesia, M. Henri Moissan arrived at the conclusion that the density of this substance increases with the temperature up to bright red. It is thus that by heating in his electric furnace some magnesia, which is irreducible by heat, M. Moissan has been able to vary the density from 3.193 to 3.654. This is all the more noteworthy as this substance affords the only example of such a variation.

SOME PATENT PAPER-MAKING MATERIALS.—In the United States there are over two thousand patents relating to the manufacture of paper. Some of the patents provide for the making of paper from the leaves of trees; from hop plants, bean stalks, pea vines; from the trunks and stems of Indian corn and every variety of grain; from moss, hay, and more than one hundred kinds of grasses; from straw and cocoanut fibre; from fresh water weeds and sea weeds; from sawdust, shavings, and asbestos.

SHORT WEIGHT IN THE SOAP TRADE.—A complaint from a member was laid before the Board of the Manchester Chamber of Commerce, on Wednesday, concerning short weights in the soap trade. The letter stated that "the original firkin was 64 lb. net, but that owing to competition an almost universal practice of giving short weight had crept in, and 60 lb. was generally recognised by manufacturers. This, he contended, was 4 lb. short weight. Nor was this the worst. Several wholesale houses were now inquiring for and many buying 56 lb. net, knowing the firkins to be 8 lb. deficient. The smaller buyers took these from the wholesale dealer without asking details or weighing. The writer asked that the Chamber "would bring about united action and fix the standard at 64 lb. net weight of soap." The letter was remitted to the Chemical Sectional Committee of the Chamber for consideration and report.

THE COMPOSITION OF CHEAP TEA.—At the City of London Court, on Wednesday, the Deputy-Judge heard the case of Calthorpe v. Harrison. The plaintiff is a tea merchant, and the defendant is a grocer in Seven Dials. The claim was for £7. for a quantity of tea dust supplied to the defendant, which it appeared was purchased from the plaintiff at 2½d. per lb. Plaintiff was called, and stated that the article he sold to the defendant was a marketable commodity, but as he had had it a long time in stock he wished to get rid of it. He said it was tea—(laughter)—and he expected to find a certain proportion of foreign matter in the stuff. He had had it warehoused for two years. In the ordinary course of business good tea dust realised from sixpence to sevenpence per lb. In cross-examination he said that this "tea" might be the same sort of tea that was supplied to the Salvation Army for their shelters.—The solicitor for the plaintiff said that this tea was sold to the defendant, who examined a sample and approved of it, and he contended that an undue time had elapsed between the date when he discovered that the stuff was of a nauseous character and the time he had it analysed prior to returning the bulk.—Defendant was called, and swore that he had been selling the stuff for some time before he discovered its bad quality. It was sold mixed with cheap teas at 1s., 1s. 3d., and so on per lb.—Mr. Cripps, analyst to the Strand Board of Works, deposed that the sample of the tea dust had been submitted to him for analysis. On examination he found in it 13½ per cent. of mineral matter, six per cent. of which was silicates or sand. (Laughter.) In the ordinary course of his duty he would have condemned such a sample.—His Honour said no tradesman could be expected to sell such stuff as this when he found out what it was. There would be a verdict for the defendant, less the cost of the amount he had sold.

USELESS SEWAGE FARMS.—At Leigh Police-court, on Monday, the Leigh and Tyldesley Local Boards were each fined £20. and costs and an order made upon them to abate the nuisance within six months' for knowingly permitting the sewage from their sewage farms to run into brooks, and thence into the river Mersey, thereby polluting that river. The Mersey and Irwell Joint Committee prosecuted. The magistrates strongly intimated that both Boards had not attended to their duties.

AWARDS AT THE HEALTH EXHIBITION.—Awards have been made to the following exhibitors at the Health Exhibition, now being held at Liverpool, in connection with the Sanitary Congress. Medals:—Messrs. Boake Roberts and Co., for liquid sulphur dioxide. Messrs. F. C. Calvert and Co., for carbolic acid. Messrs. Doulton and Co., metallo-ceramic joint. The Incandescent Gas Light Co. Price's Patent Candle Co. Certificates:—Doulton and Co., glazed fireplaces. Jeyes Sanitary Compounds Co., disinfectants. Magnetite Patent Filter Co., filters. Newton Chambers and Co., disinfectant. Reynolds and Branson, apparatus for estimating CO₂ in air.

DEATH BY PETROLEUM.—An inquest was held this week on the body of Sarah Calvert, aged 35. According to the evidence of the husband, who was also badly burnt, it appears that on the night of the 23rd inst. his wife blew down the chimney of a paraffin lamp to extinguish it, and an explosion immediately followed. The reservoir of the lamp was a glass one. The oil fell upon her night-dress, which became a mass of flame. He managed to extinguish the burning clothes, being himself severely burned; but although his wife was at once taken to the hospital, she died the day following from shock. The jury returned a verdict of "Accidental death."

MANAGEMENT OF THE GOVERNMENT CORDITE WORKS.—Several important changes have taken place at the cordite works at Waltham. Captain Nathan, late assistant superintendent of gunpowder, is now superintendent of the nitro-glycerine and gun cotton factories. His place is filled by Lieutenant Buckle. Captain Nathan has made several changes in the course of the work, and a new system of shifts has been adopted. He also considers the rate of pay insufficient, and a new rate of wages is being considered. He will evidently have something to do in his new capacity to judge by the following. Recently a policeman upon searching the pockets of a lad employed in one of the danger houses at the cordite factory found a quantity of cheap and easily ignitable fireworks. The lad was taken before the superintendent and summarily dismissed.

DEPRESSION IN THE GLASS BOTTLE TRADE.—A conference between representatives of the Yorkshire Glass Bottle Manufacturers' Association and the Yorkshire Glass Bottle Makers' Union was held at Wakefield on Monday. Mr. Caleb Kilner, of Conisborough, presided, and several of the largest glass bottle manufacturers in Yorkshire were present, together with Mr. Isaac Kaberry, of Pontefract, the solicitor and secretary to the Masters' Association. The present very depressed state of trade in the glass bottle making districts was fully considered, and the masters laid before the representatives of the workmen various conditions, which it will now be for the men to take into consideration. It was asserted that foreign-made glass bottles are now being sold in vast quantities in England at prices below what English manufacturers can produce them.

A VENERABLE "CHESTNUT."—We live and learn, but to have the following rammed down one's throat as something new, is rather too much for me:—"One of the most remarkable results of temperance efforts in this country of recent years is the substitution of non-alcoholic drinks for beer in hay and harvest work throughout the country. A new drink is called "Stokos," because it is largely used by the stokers. It is now gradually finding its way into gasworks, iron foundries, the dock and shipbuilding yards, etc. It is not only pleasant to drink, but is most thirst-quenching. It consists of a composition of fine ground oatmeal, lemon, and white sugar; a gallon of this drink can be made for threepence, and if six gallons are made it only costs twopence a gallon." The italics are ours. We are not able to gain access to the records of the iron industry in the days of Tubal Cain, but we should expect to find mention of this drink if we were.

SMOKE PROSECUTIONS—HOW TO EVADE THEM.—A number of firms were summoned at the City Police Court, on Wednesday, by the Corporation for causing smoke nuisances. One of the defendants was the Manchester Steel Nut and Tube Co., against whom an order of abatement had already been made. Mr. Langdon, barrister, submitted that the summons was bad by reason of the chimneys, in respect of which the order was made, having been pulled down. Mr. Rooke, on behalf of the Corporation, contended that the order covered the whole of the works. The bench, however, held otherwise and dismissed the summons. It is satisfactory to see that the Bench took a reasonable view of this case. It is only fair to "ordinary mortals," however, that they should, in consideration of the following. In the course of the hearing of another case, Mr. H. Goodwin, the presiding justice, remarked that it took the Corporation on one occasion two years to get a smoke nuisance abated. In that instance the offender

was at the time a member of the City Council, and more foul smoke came from his establishment than from all the manufactories put together. Mr. Rooke asked if it was the Piccadilly case the chairman was referring to, and was answered in the affirmative. Mr. Rooke added that the Bench must admit that the Corporation succeeded in the end.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are rather quiet. Benzols remain the same as last week at 1s. 2d. Crude carbolic acid is unaltered at 1s. 7d., and 40% crystals are a fraction dearer at 6d. There is no alteration in both crude and solvent naphtha. Creosote and anthracene remain in *statu quo ante*. Pitch is in good demand at full prices, 37s. 6d. to 40s. per ton, f.o.b. East Coast, now being quoted.

Sulphate of ammonia is unsettled, and prices seem to vary considerably at different ports. Being scarce, an improved demand would mean an advance in prices, but the difficulty lies in the uncertainty of the demand. Beckton value is now £13. 2s. 6d., London outside makes £13. 2s. 6d., Liverpool £13., Hull £13. to £13. 2s. 6d., Leith £13. 3s. 9d.

REPORT ON MANURE MATERIAL.

During the week the market has continued quiet, but without much alteration in values. The quotations for 75/80% Florida phosphate rock for Baltic, Continent, and United Kingdom are unchanged, but buyers rather hang fire, and some concession probably will have to be made in order to induce important business. South Carolina River rock offers ahead at 6½d. per unit, and probably a fraction less would be business. The value of Peace River rock is about 6½d. per unit. Further business has been done in River Plate cargoes of bones to United States and to United Kingdom at full prices. The value of any cargoes of handy size is fully £4. 11s. 3d. per ton. Crushed Kurrachee bones offer for shipment ahead at £4. 13s. 9d., and Bombay bone meal at £4. 16s. 3d. per ton. Nitrate of soda is unchanged: on spot the value of ordinary quality is 9s. per cwt., and of refined 9s. 1½d. per cwt. Due cargoes of ordinary quality are worth about 8s. 10½d., and later sailings 9s. to 9s. 3d. per cwt., according to quality and position.

MISCELLANEOUS CHEMICAL MARKET.

There is a fair all round demand for alkalis, but no improvement in values can be recorded. In caustic soda the tendency has been slightly in the direction of easier rates, and special concessions have been made on sales for certain markets to meet competition abroad—current spot values, however, may be stated as follows:—f. o. b. Tyne, 77% £10. 12s. 6d.; f.o.b. Liverpool, 74%, £9. 12s. 6d.; 70%, £8. 12s. 6d.; 60%, £7. 12s. 6d.; cream, 60%, £7. 10s. per ton, in 10-ton lots and upwards. Ammonia alkali still offers at low rates, both for prompt and forward delivery, and soda crystals are still offering at extremely low rates. Leblanc soda ash, 48/52%, nominally 1d. per degree, f.o.b., in casks, but concessions to the extent of ½d. can be obtained. For bleaching powder the demand is fairly good, and prices are maintained at £7. 10s., softwoods, rails, and £7. 17s. 6d. to £8., hardwoods, f.o.b. For the United States prices are 10s. per ton more. Chlorate of potash still selling at 6d. to 6¼d. per lb., according to quantity. Recovered sulphur £3. 12s. 6d. per ton—Sicilian sulphur has been dealt in latterly at abnormally low rates. Saltcake nominally 15s. to 17s. 6d. per ton, on rails, and business over 1895 has been reported at this figure. White powdered arsenic is a firm market, with small supply: spot prices £14. 5s. per ton, nett, Garston, etc. Sulphate of copper without further change in position since last report. Acetates of lime are distinctly firmer, and forward quotations are only procurable at a premium on present rates: spot values are—brown £7. per ton, and grey £10. 10s. to £10. 15s., at usual points. In other acetates and acetic acid there is also a slightly firmer tone. Potash, caustic and carbonate, are steady in value and in fairly active demand, both for prompt and forward delivery. All ammonia salts are firm in price, with good inquiry. In aniline oil and salt prices are a little firmer, but there is no material improvement in demand. Carbolic acids still neglected. Green copperas is in better request, but price remains unchanged.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, quiet: Scotch warrants closed at 43s. 5d., Middlesbrough 36s. 3½d. cash, and hematite 44s. 4d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s, closed at £41. 12s. 6d. to £41. 17s. 6d. cash, and £42. to £42. 5s. three months. Tin, firm: Straits closed at £72. to £72. 10s. cash, and £72. 10s. to £73. three months; Australian, £72. 5s.; English ingots, £75. Lead, steady: Spanish, £9. 17s. 6d.; English, £9. 17s. 6d. to £9. 18s. 9d. Silesian Spelter, ordinary, £15. 10s. Nickel, 1s. 5d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 14s. Copper shares, firm: Cape, 1½ to 1¾; Copiapo, 1¼ to 2¼; Libiola, 3¼ to 3½; Mason and Barry, 3 to 3½; Rio Tinto, 15¼ to 15½; Tharsis, 5½ to 5¾.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 43s. 6d., and 43s. 5d. cash, also at 43s. 7½d. one month; closing with buy 43s. 5d. cash, sellers ask 43s. 5½d. Cleveland closes with buyers at 36s. 3½d. cash, sellers ask 36s. 4½d. Cumberland hematite done at 44s. 4½d. cash, closing with buyers at 44s. 4d. cash, sellers ask 44s. 4½d. Middlesbrough hematite closes with buyers at 43s. 1d. cash, sellers ask 43s. 2d.

WOLVERHAMPTON, WEDNESDAY.—A moderately good trade was transacted to-day, but consumers showed an inclination to postpone business until the quarterly meetings a fortnight hence. Quotations all round were firm. Market bars £7. 10s., merchant bars £6. 10s., and common £5. 10s.; galvanised sheets, doubles, £9. 15s. to £10, black doubles £6. 12s. 6d. upwards, and lattens £7. 5s. upwards. Pig iron strong, local best 55s. upwards. Medium sorts 41s. 6d. to 42s., and cinder 38s. Midland pigs, 42s. to 43s., nominal. Coal improving.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, and considerable sales have been effected, principally in Lagos at £22. 15s. and Benin and Accra at £21. per ton, all transit. Olive oil keeps strong with a fairly good inquiry; Seville offering at £33. to £34. per tun. Linseed has been ruling 3d. dearer, at 22s. to 22s. 6d. per cwt. for Liverpool makes in export casks. Business to-day, however, is rather quiet. Cottonseed continues to command full prices, but the market is quiet, 21s. 6d. to 22s. being present values. Castor oil is about the same, sellers of good seconds Calcutta being firm at 2½d. First pressure French is offering at 2½d. per lb. In tallow the business passing is small, and so are stocks. The tone of the market, however, is steady. Resin: common is steady at 3s. 7½d. per cwt., other grades remain quiet but steady. Spirits of turpentine are in good demand at a reduction of 3d., price now being 21s. 6d. per cwt. Petroleum is steady with American at 4d. to 5¼d. and Russian refined 3½d. to 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The general market in its signs during the past week has been rather less dubious, and it seems to be the case that things are improving a little, especially in the department of chemicals for export. The improvement is no great affair, and prices are not appreciably affected. Sulphate of copper has marked a slight advance owing to other than general causes, but this had been looked for. Chlorate of potash, on the other hand, has made a further drop. The others are unchanged.

More business than usual has been done in sulphate of ammonia, consequent on sellers coming down to the mark of £13. 5s., prompt f.o.b. Leith, which seems so far to have met the immediate views of the buying section of the market. In forward there has been no movement beyond mere inquiry.

Mineral lubricating oils are rather firmer, the heavier grades of these now fetching somewhat improved values. Solid paraffins are also in better request for the candle manufacturing requirements, being now well into the busiest part of the season for these.

Dye chemicals are in rather better demand.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 17s. 6d., 70/72° £8. 15s., 60/62° £7. 15s.; and cream 60/62° £7. 12s. 6d., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £21. 10s., and boracic acid, £31. 10s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £13. 5s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1½d., soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., to £3. 15s.; 885° £4. to £5., and 890/895° £4. 5s. to £5. 10s. Week's imports of raw sugar at Greenock were nil.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Sept. 18th, 1894, state:—

Chili Charters for the past fortnight are cabled as 900 tons, making the total since 31st December last 15,250 tons, against 14,650 tons same time last year. Exchange 11½d. In our last copper report of the 3rd inst., quotations for copper G.M.B.'s were £40. 3s. 9d. cash and £40. 11s. 3d. three months. By the 6th prices had declined to £39. 17s. 6d. and £40. 5s. respectively, since when values advanced to £40. 17s. 6d. and £41. 6s. 3d. cash and forward on the 14th. Yesterday, with a very active market, on account of higher rates from America, G.M.B.'s touched £42. cash and £42. 7s. 6d. three months, thus showing a rise of £4. 2s. 6d. since the 19th of June last, when a fair quantity of G.M.B.'s changed hands at £37. 17s. 6d. Market yesterday closed weaker at £41. 15s. cash and £42. 2s. 6d. forward, and to-day we close with sellers at 2s. 6d. less for both positions. The total stocks in Liverpool, Swansea, London, and Havre are 48,599 tons, against 48,807 tons on the 3rd inst., showing a decrease of 208 tons for the fortnight. The stocks include about 2,000 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,349 tons, against 52,392 tons on the 3rd inst., showing a decrease of 43 tons. Refined and manufactured sorts are firm, quotations being:—Tough cake, £44. to £44. 10s.; best select, £44. 10s. to £45.; Indian sheets, £49.; strong sheets, £53.; and yellow metal sheets, 4¾d. per lb.

The sales of furnace material comprise:—35 tons Argentiferous Peruvian ore, 35 tons Argentiferous Mexican bars, 50 tons Argentiferous Mexican matte, 12 tons Argentiferous River Plate Regulat, 42 tons Argentiferous Chili Regulat, all on private terms; 4 tons Spanish precipitate, at 7s. 10½d., and 50 tons Portuguese precipitate (high produce), at 8s. 6d. per unit.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals generally unaltered, and there is a fair demand particularly for bleaching powder, shipments have been very good recently, and stocks show a considerable decline, prices to-day are as under:—

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 10s. per ton, nett; do., 70°, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 9s. 6d. per ton, f.o.b. Tyne.

Cutch Germany, 75 pkgs. M. Kearton & Co. Diyl Diyl E. Indies, 4 pkgs. Prop. Bull Wf. Extracts Denmark, 33 pkgs. J. Forsey Germany, 40 J. Knill & Co. France, 575 Boucher, Mortimore & Co. " 101 Prop. Chmbln.'s Wf. " 20 Union L. Co. U. States, 52 W. Burton & Sons Belgium, 250 L. J. Levinstein & Sons Cambier E. Indies, 235 pkgs. Union L. Co. " 55 S. Barrow & Bro., Ltd. " 373 J. Greig " 1,707 L. & I. D. Jt. Co. " 873 Adamson, Gillfillan & Co. China, 921 N. S. S. Co. Indigo " 4 cts. Croysdale & Co. E. Indies, 92 Parry & Co. " 8 Arbuthnot, Latham & Co. " 1 Park, Macfadyen & Co. " 20 R. von Glehn & Sons " 25 L. & I. D. Jt. Co. France, 11 " " Logwood Jamaica, 39 t. Hogg, Curtis & Co. Laguna, 167 Churchill & Sim Saffron Spain, 1 pkge. J. Knill & Co. Shumac Italy, 150 pkgs. J. H. Dove & Co. " 150 H. Johnson & Sons " 1,000 Bevington & Sons Tanner's Bark U. States, 10 t. A. & W. Nesbitt Adelaide, 15 Baxter & Hoare " 7 Union L. Co. Belgium, 14 Leach & Co. Valonia A. Turkey, 52 t. A. & W. Nesbitt " 8 M. D. Co. Farina— Germany, 50 pkgs. J. Barber & Co. Holland, 50 " " " 150 H. Lorenz " 310 W. Measday " 100 R. Chambers & Co. Glucose— Germany, 50 pkgs. 412 c. J. H. Epstein " 29 237 c. R. G. Hall & Co. " 500 500 J. Barber & Co. " 25 205 F. J. Warren " 12 90 J. Knill & Co. " 500 500 Baxter & Hoare " 63 504 Soundy & Sons " 15 130 M. D. Co. France, 300 300 L. Norman & Co., Ltd. U. States, 5,696 9,199 R. G. Hall & Co. " 4,750 1,750 J. Barber & Co. " 50 286 Prop. Chmbln.'s Wf. " 150 855 Prop. Scott's Wf. " 99 545 Pillow, Jones & Co. " 50 283 Union L. Co., Ltd. " 6,000 6,000 Fellows, Morton & Co. " 3,039 3,040 Beresford & Co. " 100 600 Deering & Robottom " 1,750 1,750 Robinson, Sons, & Co. " 500 500 Devitt & Hett Lead Acetate— Germany, 13 pkgs. F. Boehm Litharge— Germany, 4 pkgs. H. Lambert Manganese Ore— China, 150 t. J. Swire & Sons Manure— Chili, 1,953 t. Montgomery & Co. Cape, 599 D. de Pass & Co. Germany, 130 Lawes Manure Co., Ltd. Cyprus, 11 H. A. Litchfield & Co. " 11 Cyprus Co., Ltd. Belgium, 445 West & Penrose France, 20 J. Burnet & Sons Mica— E. Indies, £112 W. M. Smith & Sons Adelaide, 130 " " Norway, 25 " "	Naphtha— U. States, 15 brls. H. Gottsteing & Co. Ochre— France, 443 cks. W. Harrison & Co. Holland, 3 pkgs. Philipps & Graves U. States, 27 brls. A. Pygott Paraffin Wax— U. States, 608 brls. H. Hill & Sons " 100 G. H. Frank Phosphate Rock— France, 210 t. A. Hunter & Co. Pitch— N. Russia, 200 brls. 31 cks. Union Wvs. Co. " 31 Berg, Son, & Co. " 800 Linck, Moeller, & Co. France, 261 brls. J. Poth, Hille, & Co. Germany, 73 Philipps & Graves Plumbago— Germany, 72 cks. B. Gallaway " 121 H. C. Everett Ceylon, 195 brls. R. G. Hall & Co. " 181 J. Thredder Son, & Co. " 91 Beresford & Co. " 44 Lucas & Spencer's Wf. Germany, 10 G. Mayor & Co. Ceylon, 18 L. & I. D. Jt. Co. " 400 Marshall & French U. States, 100 pkgs. S. Guiterman & Co. Potash— Canada, 43 c. S. Ward & Co. Germany, 4 pkgs. H. Lambert France, 125 F. W. Berk & Co. Potassium Carbonate— France, 70 c. J. A. Reid Canada, 65 J. Barber & Co. Potassium Oxymuriate— Belgium, 10 pkgs. Arnati & Harrison Sweden, 100 G. L. Ransdale Potassium Permanganate— Holland, 14 pkgs. J. Barber & Co. Potassium Sulphate— Germany, 127 pkgs. W. G. Blagden Pumice Stone— Italy, 4 t. Fellows, Morton, & Co. " 1 B. Gallaway Pyrites— Spain, 2,269 t. C. Tennant, Sons, & Co. " 1,330 Naylor, Benzon, & Co. Rosin— U. States, 5,500 brls. H. Hill & Sons Sal Acetos— Germany, 10 pkgs. F. Boehm Salammoniac— Holland, 4 pkgs. Kaltenbach & Schmitz Saltpetre— Germany, 68 cks. P. Hecker & Co. E. Indies, 345 bgs. Ralli Brs. Germany, 4 Petri Brs. Sheep Dip— Cape, 18 pkgs. Balfour & Co. Silica— Norway, 425 M. D. Co. Soda— Belgium, 110 c. Arnati & Harrison Germany, 7 Craven & Co. Sodium Acetate— France, 6 pkgs. H. Lorenz Starch— Belgium, 60 pkgs. F. Rosenthal & Co. " 154 F. Claydon & Co. " 160 Leach & Co. " 40 H. Johnson & Sons " 46 Sawer, Sons, & Co. " 600 Prop. Scott's Wf. Germany, 370 Seaward Brs. Holland, 1,940 Horne & Co. " 420 Little & Johnston U. States, 520 A. Starck " 200 Ohlenschlager Brs. Stearine— France, 215 bgs. H. Hill & Sons " 69 Beresford & Co. " 120 Walbaum & Tosetti Belgium, 190 H. Hill & Sons Sulphur— Austria, 5 t. M. D. Co. Belgium, 3 Davis & Soper Italy, 200 W. C. Bacon & Co.	Talc— E. Indies, £100 A. B. Curtis & Co. Tallow and Stearine— U. States, 35 cks. W. W. Young Tar— N. Russia, 5,224 brls. Linck, Moeller, & Co. " 404 Elkan & Co. " 786 Un. Wvs. Co. " 3,951 W. F. Malcolm & Co. Tartaric Acid— Holland, 42 pkgs. Kirkpatrick & Co. France, 80 B & F. Wf. Co. Holland, 15 " " Terra UMBER— Cyprus, 100 t. Vokins & Co., Ltd. Turpentine— U. States, 2,653 brls. Nickoll & Knight Ultramarine— Belgium, 4 brls. Leach & Co. Holland, 3 cks. Philipps & Graves Varnish— U. States, 38 pkgs. Beck & Pollitzer Spain, 11 R. Ingham Clark & Co. Canada, 24 McKellar, Carr, & Co. France, 4 Flageolet & Co. Belgium, 2 Leach & Co. White Lead— Holland, 24 cks. Burrell & Co. " 5 A. Zumbek & Co. Germany, 19 N. J. Fenner & Co. " 20 Colthurst & Harding " 72 Randall Bros. " 115 Steinhoff, Sons, & Co. Austria, 6 A. Stedman & Sons Italy, 1 cs. Leach & Co. " 100 bgs. G. S. N. Co. Wood Pulp— Norway, 2,000 pkgs. 20 t. Christophersen & Co. " 540 E. J. & W. Goldsmith " 1,715 Moreton Cox Brs. " 12 W. E. Bott & Co. Germany, 260 Horton Kirby Paper Wks. Co. " 860 " " Holland, 108 C. S. Lovell " 1,376 Little & Johnston Sweden, 640 bls. G. F. Green & Co. " 15 pkgs. M. Dk. Co. " 5,476 Henderson, Craig, & Co. Portugal, 200 E. J. & W. Goldsmith Italy, 66 A. Laming & Co. " 66 Thames S. T. & L. Co., Ltd. Zinc Oxide— Holland, 16 pkgs. G. Rahm & Co. Germany, 50 M. Ashby, Ltd. " 85 J. Matton	Dyestuffs— Cochineal Las Palmas, 15 bgs. Kolp & Co. " 3 " " Diyl Diyl Margarita, 190 t. " " Hamburg, 951 bgs. " " Extracts Antwerp, 50 cks. " " New York, 2 brls. Turney Brs., Ltd. " 60 bxs. " " Halifax, N. S., 40 cks. Boucher, Bacon, & Co. Trieste, 599 brls. Oak Extract Co. Fiume, 197 DeClermont & Douner " 400 Oak Extract Co., Ltd. Rouen, 306 cks. Co-op. W'sale Society, Ltd. Ghent, 25 " " Fustic Leghorn, 10 t. " " Corfu, 120 bds. Barff & Co., Ltd. Colon, 185 ps. Widow, Duranty & Son Trieste, 28 trs. A. Cross & Co. Logwood New York, 715 ps. B. Ackerley & Son Champton (Mexico), 498 t. E. Brownbill & Co. Shumac Palermo, 100 bgs. J. Kitchin, Ltd. " 1,420 600 bls. " " Valonia Smyrna, 102½ t. G. Essayan & Co. Farina— Fiume, 100 bgs. A. Baumann & Co. " 240 " " Glucose— New York, 10 pls. 350 b ls. Stettin, 50 cks. " " Hamburg, 100 bgs. " " Guano— B Ayres, 424 bgs. Williamson, Milligan Lead Acetate— Hamburg, 29 cks. " " Limestone— Antwerp, 4 cs. J. T. Fletcher & Co. " 1 crt. " " Manganese Ore— Poti, 2,055 t. Wigan Coal & Iron Co. Mineral White— Trieste, 150 bgs. F. Parisi Fiume, 220 " " Nickel— Havre, 8 cks. Cunard S. S. Co., Ltd. Ochre— Leghorn, 76 bgs. " " Phosphate— Montreal, 358 t. Phosphate of Lime Co. Phosphate of Lime— Las Palmas, 6,400 bgs. T. J. Sharp & Co. Potash— Antwerp, 60 brls. J. T. Fletcher & Co. " 6 dms. " " Rouen, 60 cks. Co-op. W'sale Society, Ltd. Potash Salts— Hamburg, 250 bgs. " " Pumice Stone— Messina, 6 cs. " " Pyrites— Huelva, 2,020 t. Matheson & Co. Rosin— Boston, 100 brls. " " New York, 6,100 " " Savannah, 2,581 " " Salt— Gd. Canary, 10 bgs. " " Saltpetre— Calcutta, 1,245 bgs. " " Soap— Antwerp, 9 cs. " " Boston, 4 " " Gd. Canary, 1 " " Bari, 146 " " Naples, 102 " " Leghorn, 50 " "
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LIVERPOOL.

Week ending September 13th.

Soapstone —		
Bordeaux,	200 bgs.	G. G. Blackwell
Genoa,	200	
Trieste,	200	W. Harrison & Co.
Sodium Silicate —		
Hamburg,	1 ck.	
Starch —		
Antwerp,	586 cs.	J. T. Fletcher & Co.
"	30	
Rotterdam,	40	
Stearine —		
Antwerp,	160 bgs.	
New York,	5 hds.	
Sulphur —		
Catania,	50 cs. Steinmann & Co.	
"	83 brls. 255 bgs. 120 cks.	
Sulphur Ore —		
Huelva,	1,526 t.	Matheson & Co.
Tallow —		
B. Ayres,	272 cks.	
Gd. Canary,	10 tins	
Tar —		
Archangel,	5,296 brls.	
Tartar —		
Bordeaux,	12 cks.	
Turpentine —		
Savannah,	650 brls.	
Varnish —		
New York,	1 brl. 1 hf.-brl.	Crane Chemical Co.
Verdigris —		
Bordeaux,	4 cks.	
Waste Salt —		
Hamburg,	200 bgs.	
White Lead —		
Trieste,	15 cs.	F. Weber & Co.
Rotterdam,	7 cks.	
Wood Pulp —		
Quebec,	150 bdls.	A. Rice & Co.
Drammen,	5,172 bls.	
Hamburg,	10	
Gothenburg,	136	
Montreal,	1,054 bdls.	A. Rice & Co.
Skien,	3,879 bls.	
Christiania,	5,470	
Zinc Oxide —		
Antwerp,	130 brls.	J. T. Fletcher & Co.
"	1	
Zinc Skimmings —		
New York,	26 brls.	
Zinc White —		
Antwerp,	25 cks.	

MANCHESTER

Week ending September 15th.

Ammonium Sulphocyanide —		
Hamburg,	1 ck.	
Antimony Oxalate —		
Rotterdam,	2 cks.	
Arachide Oil —		
Rotterdam,	10 cks.	
Barytes —		
Rotterdam,	5 cks.	
Carbonic Acid —		
Rotterdam,	20 tubes.	
Castor Oil —		
Antwerp,	54 brls.	
Caustic Potash —		
Hamburg,	2 cs.	
Chemicals (otherwise undescribed)		
Rouen,	24 cks.	
Hamburg,	5 cs.	
Colours —		
Rotterdam,	68 cks. 10 brls. 15 cs.	
Antwerp,	26	
Dyestuffs —		
Annatto		
Bordeaux,	4 cks.	
Extracts		
Rotterdam,	23 cks.	
Bordeaux,	60	
Logwood		
Laguna,	324 t.	
Dyestuffs (otherwise undescribed)		
Paris,	20 cs. 40 cks. Simpson, Howden, & Co.	
Farina —		
Hamburg,	135 bgs.	
Glucose —		
Rotterdam,	4 cks.	
Stettin,	1,000 bgs.	

Limestone —		
Antwerp,	2 crts.	
Litharge —		
Rotterdam,	15 cs. 17 cks.	
Minium —		
Rotterdam,	5 cks.	
Oxalic Acid —		
Rotterdam,	15 cks.	
Palm Oil —		
Hamburg,	10 cks.	
Pitch —		
Rotterdam,	54 cks.	
Potash —		
Rotterdam,	40 dms.	
Hamburg,	19 cks.	
Starch —		
Rotterdam,	70 cs.	
Ultramarine —		
Hamburg,	4 cks. 4 cs.	
Waste Salt —		
Hamburg,	qty.	
Wood Pulp —		
Gefle,	32,239 lbs.	
Christiania,	3,500 bls.	
Fredrickstad,	285	
Zinc Oxide —		
Rotterdam,	50 brls.	

HULL.

Week ending September 15th.

Acetic Acid —		
Rotterdam,	2 cks. 52 bls.	Hutchinson & Son
Arsenic —		
Hamburg,	5 kgs.	Bailey & Leatham
Barytes —		
Antwerp,	40 bgs.	Bailey & Leatham
"	200	H. F. Pudsey
Rotterdam,	22 cks.	Hutchinson & Son
Bremen,	43	
Antwerp,	19	
Chemicals (otherwise undes.) —		
Stettin,	78 cks.	Wilson, Sons, & Co., Ltd.
Bremen,	6 pks.	Veltmann & Co.
Hamburg,	9	Wilson, Sons, & Co., Ltd.
Dunkirk,	1 68	"
Antwerp,	48	"
"	4	
Cod Oil —		
Aalesund,	175 brls.	Wilson, Sons, & Co., Ltd.
Colours —		
Rotterdam,	10 cs. 66 cks. 24 brls. 10 bks.	Hutchinson & Son
"	31 29	46 pks. W. & C. L. Ringrose
"	11	Wilson, Sons, & Co., Ltd.
Antwerp,	2	Blundell, Spence, & Co.
Cryolite —		
Copenhagen,	1 ck.	Wilson, Sons, & Co., Ltd.
Dyestuffs —		
Alizarine		
Rotterdam,	142 brls. 2 bks.	Hutchinson & Son
Valonia		
Smyrna,	257 t.	
Farina —		
Stettin,	235 bgs.	Wilson, Sons, & Co., Ltd.
Ghent,	238 cs.	"
Harlingen,	1,800 bgs.	
Glucose —		
New York,	348 brls.	
Stettin,	15 cks. 200 bgs.	Wilson, Sons, & Co., Ltd.
"	23	
Rotterdam,	40 bgs.	Hutchinson & Son
"	1 ck.	Wilson, Sons, & Co., Ltd.
Minium —		
Rotterdam,	19 cks.	W. & C. L. Ringrose
Phosphate —		
Ghent,	101 t.	
Phosphorus —		
New York,	6 cs.	Wilson, Sons, & Co., Ltd.

Pitch —		
Ghent,	27 bls.	Wilson, Sons, & Co., Ltd.
Bordeaux,	30 brls.	Rawson & Robinson
Pumice Stone —		
Hamburg,	3 cs.	
Saltpetre —		
Rotterdam,	135 bgs.	Wilson, Sons, & Co., Ltd.
Hamburg,	10 kgs.	"
Soap —		
Riga,	30 chts.	Wilson, Sons, & Co., Ltd.
Sodium Nitrate —		
Hamburg,	100 kgs.	Wilson, Sons, & Co., Ltd.
Starch —		
Antwerp,	132 cs.	Bailey & Leatham
Amsterdam,	20 bks.	
Bremen,	2,947	Veltmann & Co.
Rotterdam,	120	Hutchinson & Son
Tar —		
Uleaborg,	1,035 brls. 400 hf.-brls.	
Dunkirk,	1 bx.	Wilson, Sons, & Co., Ltd.
Uleaborg,	1,340 brls. 130 hf.-brls.	J. Good & Sons
Tar Oil —		
Hango,	1 cs.	J. Good & Sons
Tartaric Acid —		
Rotterdam,	2 cks.	Hutchinson & Son
Tin Oxide —		
Rotterdam,	12 cks.	Hutchinson & Son
Turpentine —		
Bordeaux,	16 cks.	Rawson & Robinson
Ultramarine —		
Rotterdam,	27 cks.	Hutchinson & Son
Varnish —		
Antwerp,	5 cks.	Bailey & Leatham
New York,	1 dm.	Wilson, Sons, & Co., Ltd.
Hamburg,	2	"
"	3 pks.	"
White Lead —		
Antwerp,	61 cks.	Bailey & Leatham
Rotterdam,	30	W. & C. L. Ringrose
"	131	Hutchinson & Son
Wood Pulp —		
Helsingfors,	277 bls.	J. Good & Sons
"	78	Furley & Co.
"	107	62 pcls.
Zinc Oxide —		
Antwerp,	25 cks.	Bailey & Leatham
Rotterdam,	25	Hutchinson & Son

GLASGOW.

Week ending September 20th.

Alum —		
Hamburg,	165 cks.	
Alumina Sulphate —		
Rotterdam,	31 brls.	J. Rankine & Son
Aniline Colours —		
Rotterdam,	2 cs. 2 cks.	J. Rankine & Son
Hamburg,	3 12	
Arachide Oil —		
Rotterdam,	2 cks.	J. Rankine & Son
Asbestos —		
Montreal,	240 bgs.	G. Gillespie & Co.
"	896	
Barytes —		
Rotterdam,	66 cks.	
Barytes Sulphate —		
Antwerp,	300 bgs.	
Camphor —		
Hamburg,	1 ck.	
Castor Oil —		
Antwerp,	28 cks.	
Chemicals (otherwise undescribed)		
Hamburg,	6 cs.	
Colours —		
Rotterdam,	2 cs. 2 cks.	J. Rankine & Son

Antwerp,	4	
Rotterdam,	10	28 pks.
Dyestuffs —		
Alizarine		
Rotterdam,	4 cks.	J. Rankine & Son
Extracts		
Antwerp,	85 pks.	
Rouen,	7 cks.	
Farina —		
Antwerp,	3 bgs.	
Hamburg,	100	
Fluor Chrome —		
Rotterdam,	1 bx.	J. Rankine & Son
Lead Acetate —		
Rouen,	16 cks.	
Minium —		
Rotterdam,	16 cks.	J. Rankine & Son
Painters' Colours —		
Hamburg,	1 cs.	
Pitch —		
Antwerp,	10 cks.	
Potashes —		
Montreal,	21 brls.	
Hamburg,	70 cks.	
Potassium Carbonate —		
Hamburg,	20 cks.	
Saltpetre —		
Hamburg,	60 cks.	
Soap —		
Rotterdam,	5 cs.	J. Rankine & Son
Philadelphia,	463 pks.	
Sodium Acetate —		
Antwerp,	16 cks.	
Rouen,	15	
Starch —		
Rotterdam,	66 cs. J. Rankine & Son	
Amsterdam,	120 bks.	
Antwerp,	60 cks. 50 bgs.	
Stearine —		
Rotterdam,	17 cks.	J. Rankine & Son
Tannin —		
Hamburg,	2 ck.	
Tartar —		
Tarragona,	5 cks.	
Bordeaux,	6	
Tin Oxide —		
Rotterdam,	3 cks.	J. Rankine & Son
Ultramarine —		
Rotterdam,	5 cs. J. Rankine & Son	
Waste Salt —		
Hamburg,	250 t.	
White Lead —		
Rotterdam,	80 cks.	
Ghent,	10	
Rotterdam,	25	J. Rankine & Son
Wood Pulp —		
Christiania,	40 bls.	
Zinc Oxide —		
Rotterdam,	15 cks.	J. Rankine & Son

TYNE.

Week ending September 15th.

Barytes —		
Antwerp,	20 bgs.	Tyne S. S. C.
Carbonic Acid Gas —		
Rotterdam,	16 tubes.	Tyne S. S. C.
Colours —		
Rotterdam,	1 bx.	Tyne S. S. C.
Antwerp,	1 brl.	
Farina —		
Hamburg,	37 bgs.	Tyne S. S. C.
Antwerp,	20	"
Kieselguhr —		
Stavanger,	100 bgs.	
Manure —		
Copenhagen,	1 cs.	
Minium —		
Rotterdam,	24 cks.	Tyne S. S.
Pitch —		
Archangel,	200 brls.	J. Hind

Starch — Antwerp, 14 cs. Tyne S. S. Co.	Zinc Oxide — Antwerp, 25 brls. Tyne S. S. Co.	Caoutchouc — Boulogne, 2 cs.	GRIMSBY. Week ending September 15th.
Stearine — Antwerp, 20 bgs. Tyne S. S. Co.	Zinc Sulphate — Hamburg, 12 cs. Tyne S. S. Co.	Dyestuffs (otherwise undescribed) Rotterdam, 208 pkgs. Boulogne, 26 cs. 3 cs. Antwerp, 1	Aniline Dyes — Hamburg, 20 cs. Rotterdam, 2
Tar — Archangel, 1,262 brls. " 1,100 J. Hindhaugh	GOOLE. Week ending September 12th.	Potash — Rotterdam, 14 cs. Dunkirk, 4 48 dms.	Caoutchouc — Antwerp, 1 cs.
White Lead — Antwerp, 10 cs. Tyne S. S. Co.	Alkali — Calais, 3 cs.	Saltpetre — Rotterdam, 100 bgs.	Chemicals (otherwise undescribed) Hamburg, 7 cs.
Wood Pulp — Christiania, 240 bls. Laurvig, 150	Antimony — Boulogne, 6 cs.	Waste Salt — Hamburg, 219 cs. 360 t. 1,005 bgs.	Dyestuffs (otherwise undescribed) Antwerp, 53 pkgs. Dieppe, 29 cs.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON. Week ending September 19th.		Coal Products —		Metallic Sodium —		Tartaric Acid —	
Acid — Cape Town, 3 kgs. £14		Allzarine Ontario, 5 cs. £75		Ghent, 14 c. £160		Melbourne, 1 t. 10 c. £142	
Calcutta, 3 cs. 7		Montreal, 10 150		Muriatic Acid —		Wellington, 4 19	
Madras, 41 pkgs. 19		Aniline Dyes Boulogne, 3 cs. £12		Algoa Bay, 10 c. £8		Rosario, 2 10	
Alkali —		Shanghai, 15 cs. 86		Cape Town, 10 8		Port Pirie, 4 22	
Algoa Bay, 18 c. £24		Aniline Oil Dunkirk, 10 drs. £300		Nitric Acid —		B. Ayres, 10 50	
E. London, 1 t. 7 6		Aniline Salts Dunkirk, 5 cs. £40		Guernsey, 20 cbys. £40			
Barbados, 1 5 6		Anthracene Rotterdam, 31 cs. £360		Phosphoric Acid —			
Alum —		Benzol Terneuzen, 20 drs. £114		Boston, 2 t. 6 c. £130			
Rabat, 3 t. 16 c. £20		Hamburg, 16 167		Phosphorus —			
Ammonia (Liquid) —		Treport, 12 cs. 111		Sta Cruz, 4 cs. £44			
Hamburg, 1 tce. £7		Boulogne, 10 puns. 80		Potash Salts —			
Rosario, 17 c. 17		Rotterdam, 11 drs. 123		Singapore, 2 t. 3 c. £322			
Ammonium Carbonate —		Coal Tar Dyes Hamburg, 1 cs. £6		Potassium Bichromate —			
New York, 65 kgs. £120		Boston, 3 cs. 55		Calcutta, 1 t. 12 c. £70			
Odessa, 7 t. 10 c. 270		Creosote Helsingfors, 20 brls. £14		Potassium Carbonate —			
Sydney, 10 cs. 19		Marseilles, 30 22		Johannesburg, 6 c. £6			
Bordeaux, 5 cs. 17		Creosote Salts Antwerp, 2,484 bgs. £193		Potassium Chlorate —			
Rouen, 2 2 62		Naphtha Calais, 50 brls. £115		Rio de Janeiro, 10 c. £30			
Ammonium Chloride —		Auckland, 20 drs. 22		Brussels, 2 6			
Odessa, 1 t. 10 c. £54		Boulogne, 63 cs. 68		Gothenburg, 4 11			
Libau, 20 pkgs. 38		Marseilles, 22 drs. 100		Odessa, 1 t. 1 69			
Ammonium Sulphate —		Naphthaline Copenhagen, 5 cs. £10		Madrid, 4 cs. 184			
Treport, 81 t. £1,093		Treport, 1 10		Saltpetre —			
Las Palmas, 2 28		Paraffin Wax Aden, 14 drs. £14		Algoa Bay, 1 t. 7 c. £34			
Arsenic —		Amsterdam, 100 cs. 222		Wellington, 15 18			
Singapore, 5 kgs. £7		Rouen, 100 cs. 30		Sao Paulo, 2 5 52			
Amsterdam, 6 cs. 18		Melbourne, 20 bgs. 55		Amsterdam, 2 45			
Adelaide, 1 t. 17		Pitch Rotterdam, 112 brls. £287		Adelaide, 10 11			
Lyttelton, 1 15 c. 28		Boston, 625 1,056 bgs. 534		Rio de Janeiro, 12 12			
Melbourne, 1 5 24		Helsingfors, 100 t. 100		Santos, 4 104			
Borax —		Pyridine Bases Amsterdam, 2 drs. £47		Rio, 4 115			
Rotterdam, 3 kgs. £6		Tar Helsingfors, 1,100 brls. £619		Sheep Dip —			
Sydney, 1 t. 22		Boston, 100 20		Wellington, 9 t. £89			
Melbourne, 8 2 c. 391		Brussels, 5 cs. 6		Sydney, 1 6 c. 14			
Hamburg, 12 cs. 91		Tar Oil Gothenburg, 250 cs. £179		Beira, 1 2 35			
Batoum, 1 11 34		Toluol Rotterdam, 13 drs. £302		E. London, 5 14 40 dms. 155			
Amsterdam, 2 23		Coal Products (otherwise undes.) —		Lyttelton, 5 14 155			
Carbolic Acid —		Cape Town, 150 pkgs. £13		B. Ayres, 2 4 85			
Rotterdam, 25 cs. £85		Copper Sulphate —		Punta Arenas, 100 cs. 220			
Hong Kong, 5 c. 15		Odessa, 14 t. 8 c. £193		Slag —			
Rosario, 4 21		Dusseldorf, 5 76		Natal, 30 t. £75			
Dusseldorf, 40 279		Algoa Bay, 1 15		Soda —			
Antwerp, 2 6		Treport, 5 2 83		Rouen, 7 c. £8			
Caustic Soda —		Wellington, 10 7		Cape Town, 3 t. 11 16			
Melbourne, 25 t. 13 c. £235		Cream of Tartar —		Soda Crystals —			
Sydney, 4 19 54		Sydney, 2 t. 1 c. £137		Algoa Bay, 4 t. 4 c. £14			
Hobart, 3 5 40		Algoa Bay, 5 16		Singapore, 1 12 6			
Johannesburg, 10 8		Rosario, 2 7		Fremantle, 1 11			
Brisbane, 10 1 87		Disinfectants —		Sydney, 100 210			
Lyttelton, 3 9 31		Hong Kong, 2 t. 7 c. £44		Sodium Bicarbonate —			
Algoa Bay, 7 13 84		Guano —		Guatemala, 1 t. £10			
Rockhampton, 11 34		Dunkirk, 130 t. 1 c. £690		Rosario, 1 2 c. 8			
E. London, 4 7		Iron Sulphate —		Melbourne, 7 c. £14			
Caustic Potash —		Melbourne, 1 t. 10 c. £9		Sodium Hyposulphite —			
Rockhampton, 11 c. £37		Manure —		Calcutta, 6 cs. £15			
Chemicals (otherwise undescribed)		Danzig, 51 t. 18 c. £200		Sodium Nitrate —			
Demerara, 5 cs. £16		Las Palmas, 2 17		Melbourne, 3 t. 7 c. £34			
Bombay, 9 66		Bordeaux, 25 4 123		Antwerp, 32 t. £60			
Treport, 2 cs. 20		Genoa, 30 100		Sulphur —			
Fremantle, 2 11		Malaga, 138 1,380		Wellington, 2 t. £16			
Wellington, 6 c. 21		Treport, 109 12 600		Algoa Bay, 50 cs. 26			
Natal, 10 23				E. London, 9 c. 5			
Citric Acid —				Sulphuric Acid —			
Brussels, 5 c. £35				Natal, 10 cs. £9			
Odessa, 2 13				Rosario, 3 t. 19 c. 13			
St. Petersburg, 1 t. 5 169				Penang, 1 5 13			
Hamburg, 10 66				Superphosphate —			
Rotterdam, 7 kgs 1 10 238				Las Palmas, 2 t. £9			
Melbourne, 10 65							
Wellington, 1 7							
Rosario, 2 15							
Port Pirie, 1 9							
B. Ayres, 10 68							
Wanganui, 2 19							
Copenhagen, 1 ck. 33							

Calcined Magnesia—

Bombay, 2 cks.
Lisbon, 1 cs.

Carbolic Acid—

Boca, 8 c.
Rotterdam, 10 t. 5
Valleyfield, 5
Hamburg, 12 5
Rouen, 5 7
Yokohama, 2 10

Castor Oil—

Sierra Leone, 4 cs.

Caustic Potash—

Antwerp, 2 t. 2 c.
New York, 8 18

Caustic Soda—

Algoa Bay, 45 cs. 10 bxs.

Ancona, 48 dms.

Antwerp, 62

Baltimore, 153

Barcelona, 434

Bari, 25

Barranquilla, 12

Bilbao, 30

Bombay, 80

Boston, 37 100 brls.

Brindisi, 18

Calcutta, 225

Chicago, 200 100

East St. Louis, 250

Fiume, 22

Funchal, 10

Genoa, 35

Halifax, 35

Hamilton, 35

Havana, 25

Helsingfors, 47

Lisbon, 30

Maceio, 2

Matanzas, 30

Milwaukee, 240

Montreal, 37

New York, 125

Odessa, 50

Oporto, 75

Pernambuco, 82

Philadelphia, 50

Puerto Cabello, 18

Rotterdam, 10

St. Stephen's, N.B., 90 dms.

Talcahuano, 100 dms.

Valparaiso, 50

Venice, 10

Vera Cruz, 178

Yokohama, 160

Chemicals (otherwise undescribed)

New York, 9 t. 13 c. £25

Antwerp, 1 8

Rio de Janeiro, 1 2 3 q. 44

Rotterdam, 1 2 2 44

Genoa, 1 5 46

Calcutta, 4 10 171

China Clay—

Bombay, 60 t.

Boston, 1,252

Calcutta, 21

Rio de Janeiro, 6

Trieste, 10

Citric Acid—

Baltimore, 4 c. £7

Coal Products—

Aniline Colours

Toronto, 1 ck.

Aniline Salts

Valleyfield, P.Q., 4 cs.

Anthracene

Rotterdam, 100 brls.

Pitch

Galatz, 25 brls.

Sulina, 30 cks.

Tar

Galatz, 25 brls.

Sulina, 75

Cobalt Oxide—

Lisbon, 1 bx. £38

Toronto, 2 q. 13

Colours—

Calcutta, 20 cs. 1 kg.

Genoa, 1

Copperas—

Alexandretta, 5 t. 5 c. £17

Copper Sulphate—

Paris, 10 t. £150

Jacatecas, 3 15 54

Konigsberg, 1 6 19

Antwerp, 1 21 23

Montreal, 1 2 3 15

Cream of Tartar—

Halifax, 1 t. 3 c. £100

Disinfectants—

Madras, 1 cs. £6

Toronto, 4 c. 6

Dried Blood—

Paris, 94 t. £952

Guano—

Barcelona, 76 t. £743

Malaga, 80 733

Teneriffe, 5 17

Gypsum—

New York, 36 t. 4 c. £134

Hyposulphite of Lime—

Melbourne, 2 c. £8

Iron Oxide—

Gijon, 4 t. 1 c. 1 q. £21

Naples, 9 2 3 65

Litharge—

Ghent, 3 cks.

Oporto, 12

Magnesia—

Pernambuco, 2 cs.

Magnesium Chloride—

Bombay, 2 cks.

Magnesium Hyposulphite—

Melbourne, 2 c. £11

Magnesium Sulphate—

Montreal, 3 c. £15

Manure—

Genoa, 36 t. 13 c. 1 q. £118

Havre, 300 1 2 1,326

Bordeaux, 248 14 3 1,187

Marseilles, 100 2 44

St. Nazaire, 100 712

Charlotte Town, 10 35

Hamburg, 50 11 230

Metallic Sodium—

Rotterdam, 2 t. 15 c. £577

Mineral White—

Ottawa, 20 cks.

Nitric Acid—

Vera Cruz, 6 c. £18

Oxalic Acid—

Trieste, 1 t. 6 c. 1 q. £50

Paint—

Benguella, 6 cks.

Bombay, 50 dms.

Colombo, 4

Colon, 6

Ferrol, 1

Galatz, 1

La Rochelle, 8

Lisbon, 157

Manaos, 11

Melbourne, 20

Nagasaki, 100

Nantes, 9

Piræus, 56 kgs.

St. Thomas, W.I., 16 2 cs.

Savannah, 44

Sierra Leone, 34

Tocopilla, 40

Vera Cruz, 11 140

Painters' Colours—

Baltimore, 5 cks.

B. Ayres, 20 cs.

Corfu, 8 brls.

Santa Catherina, 2 132 51 kgs.

Malta, 2 25 20 tins, 3 bxs. 7 pkgs.

Montreal, 38

N. Orleans, 6 brls.

New York, 28 306

Maracaibo, 145 kgs.

Para, 14 frks. 7 1 cs. 56

Santa Quaranta, 1

Ponce, 1

Humacao, 1

San Juan, 2 3 60

Rangoon, 2

Rio de Janeiro, 2

Santos, 20

Paraffin Wax—

Odessa, 10 bgs.

Salonica, 51 cs.

Phosphate—

Kingston, 20 t. £50

Phosphorus—

Tampico, 10 cs. £111

Hio, 3 t. 60

Potash Crystals—

N. Orleans, 2 cs. £45

Potassium Bicarbonate—

Vera Cruz, 6 c. £11

Potassium Bichromate—

Rouen, 7 c. £3

Piræus, 1 t. 2 46

Potassium Chlorate—

Hio, 40 t. £2,324

St. Petersburg, 30 1,770

New York, 7 10 c. 438

Naples, 1 56

Montreal, 2 6

Copenhagen, 3 170

Pt. Elizabeth, 1 56

Calcutta, 10 28

Lima, 2 7

Hamburg, 1 56

Potassium Prussiate—

Yokohama, 11 c. £49

Potassium Sulphate—

Teneriffe, 4 t. £43

Salt—

Adjua, 40 t.

Algoa Bay, 5

Amsterdam, 100

Antwerp, 220

Baltimore, 50

Benin, 12 10 c.

Boston, 200

Brisbane, 105

Calcutta, 620

Cameroons, 33 10

Degama, 25

Gd. Bassa, 5

Gd. Bassa, 21 5

Loango, 8

Melbourne, 50

Montreal, 566 13

Peterboro, 30

N. Orleans, 350

Newport News, 150

Indianapolis, 160

Kansas City, 50

Keokuk, 200

Chicago, 100

New York, 20

Para, 256

Rio de Janeiro, 3

Rouen, 15

S. John's, N'd., 25

Winnipeg, 5

Saltcake—

New York, 99 t. 6 c. 3 q. £100

Leghorn, 150 10 132

Baltimore, 65 11 84

Philadelphia, 165 2 189

Ghent, 100 80

Saltpetre—

Tehuantepec, 15 c. £17

Havana, 10

Cartagena, N.G., 2 13 3 q. 83

Sao Paulo, 1 5 29

Para, 2 10 60

Bahia, 4 5

Soap—

Adjua, 20 bxs.

Algoa Bay, 2 255 20 cs.

Transvaal, 110

Axim, 60

Baltimore, 44

Barbados, 300

Belize, 400

Benin, 200

Bombay, 59 51 5 cks.

Melilla, 65

Buguma, 150

Cairo, 4

Calcutta, 10 250 bdlis.

C. C. Castle, 110

Cape Town, 500

Cartagena, N.G., 6 2

Constantinople, 100

Curacao, 500

Durban, 260

E. London, 990 37

Elmina, 40

Geneva, 120

Lausanne, 120

Hong Kong, 100

Lagos, 150

Manila, 1

Monrovia, 41

Tin Oxide—		
Toronto,	9 c.	£43
Turpentine—		
Calcutta,	100 dms.	£42
Yarnish—		
Alexandria,	2 cs.	
Arecife de Lanzaote,	2	
Barcelona,	2 cks.	
Benguella,	2	
Bombay,	2	
Genoa,	1	
Hong Kong,	5	
Maceio,	2	
Oporto,	1	
Para,	2	
Valparaiso,	20 dms.	
White Lead—		
St. Thomas, W.I.,	3 cks.	
Tocopilla,	27 kgs.	
Whiting—		
Shanghai,	8 cks.	
Zinc Chloride—		
Bombay,	2 t. 13 c.	£46

MANCHESTER.

Period ending September 17th.

Aniline Oil—		
Antwerp,	10 dms.	
St. Petersburg,	54 brls.	
Aniline Salts—		
St. Petersburg,	30 pns.	
Carbolic Acid—		
Germany,	81 cks.	
Creosote—		
Switzerland,	4 cks.	
Naphthol—		
Rotterdam,	3 cks.	
Paraffin Wax—		
Callao,	20 bgs.	
Tar Oil—		
Antwerp,	10 cks.	

HULL.

Week ending September 15th.

Alkali—		
Stettin,	100 bls. 11 cks.	
Ammonium Sulphate—		
Antwerp,	240 bgs.	
Dunkirk,	47	
Rouen,	46	
Bleaching Powder—		
Bombay,	33 cks.	
Libau,	38	
New York,	70	
Stettin,	103	
Caustic Soda—		
Abo,	5 dms. 9 cs. 5 cks.	
Bombay,	36	
Helsingfors,		11
Libau,	73	
Stettin,	100	
Uleaborg,	8	
Wasa,		13
Wyburg,		16
Chemicals (otherwise undescribed)		
Antwerp,	2 cs.	
Abo,	141 cks.	
Bremen,	3	
Bombay,		5 pkgs.
Copenhagen,	1,530	
Christiania,	200 6 58	
Gothenburg,	3	2,956 slbs.
Hamburg,	11 7 29	
Harlingen,	10 230 26	
Kurrachee,	125	
Libau,		80
Rotterdam,	50	
St. Petersburg,	68	
Stettin,	2	25
Wasa,	1	
Wyburg,		30
Cottonseed Oil—		
Antwerp,	300 c.	
Copenhagen,	100	
Christiania,	3	
Gothenburg,	292	
Hamburg,	1,031	
Konigsberg,	17	
Rotterdam,	468	
Stettin,	238	
Stavanger,	39	
Dyestuffs (otherwise undescribed)		
Abo,	1 cs.	
Christiania,	12 bls.	
Rotterdam,	13 cks.	

St. Petersburg,	2	
Stettin,	1	1
Linseed Oil—		
Antwerp,	6 c.	
Aalesund,	10	
Bremen,	7	
Bergen,	67	
Bombay,	263	
Christiania,	717	
Drontheim,	58	
Hamburg,	279	
Helsingfors,	34	
Rotterdam,	233	
Stavanger,	152	
Logwood—		
Antwerp,	76 bls.	
Magnesium Sulphate—		
Gothenburg,	40 bls.	
Manure—		
Stettin,	396 t.	
Mineral White—		
Bergen,	30 bls.	
Naphtha—		
Copenhagen,	3 dms.	
Dunkirk,	25 cks.	
Paint—		
Hamburg,	5 cks.	
Kurrachee,	4	
Painters' Colours—		
Amsterdam,	19 cks.	
Antwerp,	15 2 cs. 65 dms.	
Aalesund,	1	
Bremen,	19	
Bergen,	1	2
Bombay,	10 27 828 pkgs.	
Copenhagen,	10	
Christiania,	56	100 dms.
Christiansund,		70
Drontheim,	10	
Ghent,	7	
Gothenburg,	1	1
Hamburg,	9	
Konigsberg,	5	
New York,	70	
Rouen,	28	
Stettin,	50	
Stavanger,		1
Uleaborg,	4	54
Pitch—		
Antwerp,	208 t.	
Kurrachee,	70 cks.	
New York,	638 bls.	
Slag—		
Gothenburg,	100 t.	
Uleaborg,	20	
Sulphur—		
Hamburg,	8 cks.	
Tallow—		
Rotterdam,	28 cks.	
Tar—		
Amsterdam,	6 cks.	
Christiania,	10	
Hamburg,	13	
Helsingfors,	100	
Uleaborg,	30	
Turpentine—		
Bombay,	105 dms.	
Helsingfors,	10 cks.	
Yarnish—		
Amsterdam,	2 cs.	
Antwerp,		3 cks.
Bombay,		50 dms.
Copenhagen,	2	
Drontheim,		1
Gothenburg,		1
Hamburg,	34	
Harlingen,	1	
Helsingfors,	6	

GLASGOW.

Week ending September 20th.

Ammonium Sulphate—		
France,	24 t. 19¼ c.	£325
Bleaching Powder—		
Calcutta,	35 t. 17 c.	£382
Coal Products—		
Creosote Oil		
Christiania,	20 brls.	£12
Naphtha		
Rouen,	21 t.	£296
Pitch		
Gijon,	841 t.	£1,360
New York,	83 16½ c.	125
Boston,	23 12¼	45
Rouen,	200	225
Tar		
Boston,	24 t. 10 c.	£50
Riga,	510 brls.	294
Canada,		132

Dyestuffs—		
Cutch		
Rotterdam,	2¼ c.	£3. 10s.
Logwood		
Rotterdam,	17 t.	£118
Canada,	1 6 c.	£53. 10s.
Boston,	2 7½	£35
Glucose—		
Cape Colony,	1 t. 17 c.	£20
Magnesium Sulphate—		
Christiania,	25 bgs.	£10
Paint—		
Cape Colony,	3 t. 6¼ c.	£60
Mauritius,	10 13	122
Bombay,	2 4¼	75
Painters' Colours—		
Singapore,	1 t. 17 c.	£20. 10s.
Christiania,	5 cks.	£16
Calcutta,		375
Amsterdam,	2 kgs.	3
Paraffin Wax—		
Gijon,	5 t. 18¼ c.	£130
France,	3 12¼	100
Bombay,	2 9¼	77
Potash Salts—		
Cape Colony,	18 t. 11¼ c.	£2,002
Potassium Bichromate—		
Antwerp,	5 t.	£199
Christiania,	13 cks.	214
Amsterdam,	12	199
Philadelphia,	14 t. 8¼ c.	573
Boston,	10 9¼	420
Rouen,	8 7	334
Salt Cake—		
Antwerp,	170 t.	£136
Soap—		
Calcutta,	3 t. 15 c.	£52
Soda Ash—		
Philadelphia,	6 t.	£229
Sodium Bichromate—		
New York,	7 t. 17¼ c.	£258
Rouen,	10	327
Sodium Phosphate—		
New York,	5 t. 4 c.	£56
Ultramarine—		
Boston,	5¼ c.	£37
White Lead—		
Cape Colony,	4 t. 9¼ c.	£78
Antwerp,		1
Christiania,	2 cks.	1
Riga,	7	£11. 11s.

TYNE.

Week ending September 15th.

Alkali—		
Copenhagen,	9 t. 16 c.	
Rotterdam,	6	1
Amsterdam,	40	10
Ammonia Alkali—		
Odense,	10 t.	
Ammonium Carbonate—		
Randers,	10 c.	
Ammonium Sulphate—		
Stavanger,	5 t.	
Valencia,	20 10 c.	
Antimony—		
Rouen,	1 t.	
Barium Binocide—		
Rouen,	26 t. 8 c.	
Barytes Carbonate—		
Hamburg,	152 t. 17 c.	
Rouen,	26 4	
Bleaching Powder—		
Antwerp,	8 t. 9 c.	
Trieste,	3 3	
Hamburg,	6 6	
Christiania,	22 1	
Harlingen,	10 1	
Copenhagen,	6 15	
Rotterdam,	21 14	
Drontheim,	10 3	
Amsterdam,	22 10	
Most,	25 10	
Smyrna,	2 13	
Constantinople,	4 9	
Naples,	16 13	
Caustic Soda—		
Antwerp,	28 t. 5 c.	
Bari,	21 8	
Trieste,	6 7	
Christiania,	10 3	
Christiansand,	2 18	
Rouen,	4 18	
Copenhagen,	1 3	
Ghent,	5 6	
Rotterdam,	4 18	
Valencia,	10 3	
Amsterdam,	16 6	
Genoa,	21	

Abo,	3	
Naples,	25 12	
Colours—		
Antwerp,	10 t. 18 c.	
Copperas—		
Odense,	5 t. 3 c.	
Linseed Oil—		
Bari,	6 c.	
Litharge—		
Antwerp,		12 c.
Rouen,	6 t. 6	
Rotterdam,	12	
Montreal,	11 12	
Magnesia—		
Antwerp,		19 c
Hamburg,		16
Rouen,		5
Genoa,	55 t.	2
Constantinople,		
Ochre—		
Montreal,	2 t.	
Phosphorus—		
Genoa,	2 t. 9 c.	
Potassium Chlorate—		
Bari,	10 c	
Slag—		
Rotterdam,	149 t.	
Soap—		
Copenhagen,	5 c.	
Soda—		
Hamburg,	13 t. 15 c.	
Christiania,	6 12	
Bergen,	5 7	
Nakskov,	10 15	
Rotterdam,	35 3	
Drontheim,	11	
Amsterdam,	30 7	
Montreal,	79 10	
Smyrna,	7 10	
Constantinople,	40 12	
Soda Ash—		
Trieste,	29 t. 11 c.	
Christiania,	4 1	
Harlingen,	10 2	
Lisbon,	65 6	
Ghent,	10 10	
Sodium Sulphate—		
Moss,	348 t. 11 c.	
Sulphur—		
Christiansand,	50 t.	
Ghent,	7 1 c.	
Superphosphate		
Glenken,	525 t. 1 c.	
White Lead—		
Copenhagen,	1 t. 1 c.	
Montreal,	10 2	
Naples,	1	

GOOLE.

Week ending September 12th.

Alkali—		
Dunkirk,	30 dms.	
Benzol—		
Rotterdam,	98 cks.	
Chemicals (otherwise undescribed)		
Rotterdam,	79 cks.	
Coal Products (otherwise undes.)—		
Boulogne,	4 cks.	
Ghent,	5	
Dyestuffs (otherwise undescribed)		
Ghent,	24 cks.	
Hamburg,	2	
Manure—		
Antwerp,	222 bgs.	
Boulogne,	294	
Dunkirk,	95	
Ghent,	200	
Pitch—		
Antwerp,	100 t.	
GRIMSBY.		
Week ending September 15th.		
Chemicals (otherwise undescribed)		
Antwerp,	7 cks.	
Hamburg,	4 6 cs. 4 btls	
Rotterdam,	19 dms.	
Coal Products (otherwise undes.)—		
Dieppe,	27 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	1 ck.	
Manure—		
Esbjerg,	179 t.	
Rostock,	31	

PRICES CURRENT.

WEDNESDAY, SEPT. 26th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/9
" Glacial	"			50/-
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	13½
Nitrous	"	0	0	13½
Oxalic	nett	0	0	3½
Phosphoric, 1750°	"	0	1	0
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	"	0	0	11
Arsenic, white powdered	nett per ton	1	5	0
Alum (loose lump)	"	5	0	0
Alumina Sulphate (pure)	"	5	0	0
Aluminoferic	"	2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	4
" 880=28° B.	per lb.	0	0	3
" =24° B.	"	0	0	2½
" Carbonate	nett	0	0	3½
" Muriate	per ton	23	10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
" Nitrate	per ton	42	0	0
" Phosphate	per lb.	0	0	10½
" Sulphate (grey) London	per ton	13	2	6
" (grey) Hull	"	13	2	6
Aniline Oil (pure)	per lb.	0	0	5¾
Aniline Salt	"	0	0	5¾
Antimony	per ton	33	10	0
" (tartar emetic)	per lb.	0	0	9½
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	&	75/-
Bleaching Powder, 35 %	nett	7	10	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	10	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	&	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	2
" 50/90	"	0	1	2
Carbolic Acid (crystallised 40°)	per lb.	0	0	6
" (crude 60°)	per gallon	0	1	7
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30 % @ 120° C.	"	0	0	5¾
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	14	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	4
Lucigen and " Wells Oils	"	0	0	2½
Copper	per ton	41	2	6
" Sulphate	"	14	15	0
" Oxide (copper scales)	"	39	5	0
Glycerine (crude)	"	15	0	0
" (distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	2	6
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white ")	"	25	0	0
" brown ")	"	15	10	0
" Carbonate (white lead) pure	"	1	0	0

			£	s.	d.
Lime, Acetate (brown)	..	..	per ton	7	0 0
" " (grey)	..	..	..	10	15 0
Magnesium (ribbon and wire)	..	..	per oz.	0	2 3
" Chloride (ex ship)	..	..	per ton	2	10 0
" Carbonate	..	..	per cwt.	1	17 6
" Hydrate	..	..	per ton.	17	0 0
" Sulphate (Epsom Salts)	..	..	per ton	3	0 0
Manganese, Sulphate	..	..	..	17	15 0
" Borate	..	..	per cwt.	2	15 0
" Ore, 70 %	..	..	per ton	4	5 0
Methylated Spirit, 61° O.P.	..	..	per gallon	0	1 10
Naphtha (Wood), Solvent	..	..	..	0	3 6
" " Miscible, 60° O.P.	..	..	"	0	3 8
Oils:—					
Cotton-seed	..	..	per on	22	0 0
Linseed	..	..	..	22	0 0
Petroleum, American	..	..	per gallon	0	0 5½
Stearine	..	..	per ton	25	10 0
Phosphorus (yellow)	..	..	per lb.	0	2 1
" (red)	..	..	"	0	2 8
Potassium (metal)	..	..	per oz.	0	3 7
" Bichromate	..	..	per lb.	0	4½
" Carbonate, 90% (ex ship)	..	..	per ton	16	15 0
" Chlorate	..	..	per lb.	0	0 6
" Cyanide, 98%	..	..	..	0	2 3
" Hydrate (Caustic Potash) 80/85 %	..	..	per ton	21	15 0
" " (Caustic Potash) 75/80 %	..	..	"	20	0 0
" " (Caustic Potash) 70/75 %	..	..	"	19	10 0
" Nitrate (refined)	..	..	per cwt.	1	2 6
" Permanganate	..	..	per cwt.	3	2 6
" Prussiate Yellow	..	..	per lb.	0	0 10½
" Sulphate, 90 % (ex ship)	..	..	per ton	9	15 0
" Muriate, 80 % (do.)	..	..	"	8	7 6
Silver (metal)	..	..	per oz.	0	2 5½
" Nitrate	..	..	..	0	2 10
Sodium (metal)	..	..	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	..	..	per ton	4	15 0
" " (Caustic Soda-ash) 48 %	..	..	"	4	0 0
" " (Carb. Soda-ash) 48 %	..	..	"	4	0 0
" " (Alkali) 58 %	..	..	"	3	12 6
" " (Soda Crystals)	..	..	"	2	5 0
" Acetate (ex-ship)	..	..	"	14	15 0
" Arseniate, 45 %	..	..	"	11	0 0
" Chlorate	..	..	per lb.	0	0 7¾
" Borate (Borax)	..	..	net, per ton.	21	10 0
" Bichromate	..	..	per lb.	0	0 3¾
" Hydrate (77 % Caustic Soda) (f.o.b.)	..	..	net pr. ton	10	12 6
" " (74 % Caustic Soda)	..	..	"	9	12 6
" " (70 % Caustic Soda)	..	..	"	8	12 6
" " (60 % Caustic Soda)	..	..	"	7	12 6
" " (60 % Caustic Soda, cream) (f.o.b.)	..	..	"	7	10 0
" Bicarbonate	..	..	"	5	12 6
" Hyposulphite	..	..	"	5	10 0
" Manganate, 30%	..	..	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	..	..	per cwt.	0	9 0
" Nitrite, 98 %	..	..	per ton	29	10 0
" Phosphate	..	..	"	15	0 0
" Silicate (glass)	..	..	per ton	5	7 6
" " (liquid, 100° Tw.)	..	..	"	4	5 0
" Stannate, 40 %	..	..	per cwt.	3	2 9
" Sulphate (Salt-cake)	..	..	per ton.	0	17 6
" " (Glauber's Salts)	..	..	"	1	5 0
" Sulphide	..	..	"	8	10 0
" Sulphite	..	..	"	5	7 6
Strontium Hydrate, 100%	..	..	"	8	10 0
Sulphocyanide Ammonium, 95 %	..	..	per lb.	0	0 7¼
" Barium, 95 %	..	..	"	0	0 5
" Potassium	..	..	"	0	0 7½
Sulphur (Flowers)	..	..	per ton.	7	5 0
" (Roll Brimstone)	..	..	"	5	5 0
" Brimstone: Best Quality	..	..	"	3	15 0
Superphosphate of Lime (26%)	..	..	"	2	7 6
Tallow	..	..	"	24	0 0
Tin Crystals	..	..	per lb.	0	0 6¼
English Ingo	..	..	"	7	0 0
Zinc (Spelter)	..	..	per ton	15	10 0
" Chloride (solution, 96° Tw.)	..	..	"	5	10 0

THE CHEMICAL TRADE JOURNAL

AND
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CURRENT TOPICS.

THE LONDON CHAMBER OF ARBITRATION.

AFTER having been in existence a sufficiently long time to enable something like a survey of the work done by this Chamber to be made, the opinion has been expressed that it hardly justifies its existence. This, however, does not appear to correctly represent the state of affairs. The Chamber up to now has been unpopular rather than unsuccessful. No doubt the fact that publicity is not given to cases through the Press has something to do with this, in conjunction with the coincidence that the vested interests of other trade arbitrators are opposed to the Chamber.

As to the *raison d'être* of the Chamber, if it had done nothing more than effect the judicial reforms which have recently been made with a view to facilitating commercial cases, it would have justified itself. But the utility of the Chamber cannot be said to end there.

Though the recent legal reforms are aimed at arbitration to exterminate it, they do not supererogate the work of the Chamber. Drawing up a case on each side on which counsel argues the law and a judge finally adjudicates, is a procedure calculated to save time, but appeal to the higher court remains and also the House of Lords. Now arbitration can within the range of possibility be begun and completed in a few hours. The judicial facilities which have been introduced are highly commendable, but they do not accomplish all that is desirable. Moreover, in addition to time, one of the most important factors to commercial men is the question of cost. In this connection the Chamber of Arbitration has a decided advantage. By the latter the cost can be reckoned in pounds. By the usual process of the law it is necessary to reckon in hundreds of pounds sterling.

In consideration of these facts, therefore, it seems scarcely just to start running down the Chamber till it has been afforded further opportunities for displaying its powers.

THE OLD TOPIC AGAIN—SMOKE.

As the seasons change, so do the tactics of those who are bent on effecting a radical reformation in the treatment of sewage and smoke, at other peoples' expense and trouble. With the advent of Spring, complaints and endless suggestions abound in the daily press about sewage. As Summer wanes, and fogs loom in the distance, the inevitable flood of gratuitous information on how to prevent smoke, once more gains ascendancy. The successful disposal of sewage and the prevention of needless smoke are subjects which have, and are likely to have, our best support and furtherance. But sweeping assertions about the escape of manufacturing smoke being wholly preventible, will be left to parry the attacks of adverse criticism single-handed. There are cases when the escape of black smoke from a manufacturer's chimney is ex-usable. No amount of monetary inducement in the form of

good wages can combat the inherent laziness of a certain class of labourers who do not hesitate to claim a place in the ranks of stokers.

There is one point which we commend ardent smoke preventers to keep prominently before them during the campaign of the coming winter. It is this. Recent experiments made by Dr. Russell, in London, have established the dependence of metropolitan fogs on the smoke from household fires. Similar conclusions have been arrived at in Liverpool and Manchester.

Though in many cases black smoke from boiler firing is preventible, in the chemical and kindred trades it is very often almost impossible to avoid emitting some smoke of an objectionable character. The circumstances on which the escape of smoke depends vary with each of the individual trades which fall within this category, and moreover the exigencies of many manufacturers in the matter of boiler firing vary daily and even hourly. Now, with the established worst offenders—householders—the case is quite different. The majority of their wants, in the shape of fires for heating and cooking, recur from day to day in rhythmic pulsations. So that in the vast majority of cases a grate or contrivance which will prevent smoke in one instance will do so in all the others. It would be a by no means unwholesome experience for those who are in the habit of keeping their house chimneys almost always smoking, varied by occasionally setting fire to them in lieu of sweeping, if they were treated in the same way as manufacturers. Let each in turn—manufacturers and householders—sit in judgment upon the other, and we venture to think that after a few of the latter have suffered the ignominy of Police-court summonses and proceedings, there will be less intolerant babbling about how smoke-emitting manufacturers ought to be treated, as householders will be all too busy achieving their own escape from the clutches of the smoke inspector.

THE PROGRESS OF RIVER PURIFICATION.

The first three years' work of the Mersey and Irwell Joint Committee has just been completed, and as is only natural a *résumé* of the work done has been presented.

Taking into consideration the niceties of many of the tasks which the Committee had to perform, the advance which has been made is satisfactory. Very wisely the Committee has determined, after a period of three years' persuasion, to use compulsion as a fulcrum by which to lever along those who have been dilly-dallying, in the fond belief that retribution so tardy in reaching offenders under the old Act, would be as long-winded a process under the Committee's Act of 1892. The next six months will probably see them rudely undeceived.

The tabular statement of the position of Urban Authorities and Manufacturers comparing 1892 with 1894, which has been presented to the Committee (and which was quoted by Sir J. T. Hibbert in his address to the Committee) for some reason shows to disadvantage the position of manufacturers.

Though the Committee, acting on the advice of their chemical adviser, does not adopt any standard of purity, by some idiosyncrasy manufacturers' purification works are classed as efficient and non-efficient, while the works which urban authorities have in operation are lumped together indiscriminately.

According to Sir H. Roscoe's report, it appears that it has been found expedient to analyse the river water entering the works as well as the effluent leaving it. This course we have all along advocated, as affording a reliable standard of purity for each works to attain to. Now that the need for some

standard to go by is forcing itself upon the notice of the Committee, it would be amusing, to say the least, if the latest move of their adviser were to prove to be the nucleus of the much wanted standard. Reverting to the disparity between the tables showing the position of manufacturers and urban authorities, Dr. Hewitt, in calling the attention of the Committee to the fact, asked for a return of the efficient and non-efficient works which authorities had in operation. The return should be most interesting.

As a matter of fact, manufacturers have furthered the work of the Committee in a far greater degree than have authorities. Taking the figures which render the two tables comparable, it appears that 75 per cent. of the manufacturers have purification works in operation, while there are only 46 per cent. of the authorities who have such works. Again, at first glance, no urban authority is without some scheme for treatment. But this is scarcely a fair way of comparing the relative positions. Manufacturers can be made to put down purification works in three months. Urban authorities after preparing a scheme have to obtain money borrowing powers, and get their scheme passed by the Local Government Board, a lengthy process, which may possibly terminate in the scheme being objected to, necessitating a fresh start from the beginning. Manufacturers with no treatment, and authorities who only have schemes under *consideration*—which amounts to no treatment for a very long time to come—ought, therefore, for purposes of comparison, to be classed together. The result of so doing is to show that though 7 per cent. of the manufacturers have no treatment, 4 per cent. of the authorities are practically in the same boat, while the latter are a long way behind in the matter of works in operation. It is apparent, therefore, that manufacturers as a whole have met the Committee much more readily than authorities and corporations. The rigorous routing up with which the Committee are threatening laggards should, therefore, fall lightly on manufacturers.

THE USE OF ALUMINIUM IN TORPEDO CONSTRUCTION.

A TRIAL has recently been made of a torpedo boat built by Messrs. Yarrow and Co., for the French Government. The boat is of the second class, being 60ft. long and 9ft. 3in. wide, a beam 1ft. 9in. in excess of the older type of second-class boat. The chief interest naturally centres in the hull, the machinery consisting of an ordinary set of three-stage compound torpedo-boat engines and a Yarrow water-tube boiler. In design the vessel is on the same general lines as the second-class boats recently built by this firm, but the adoption of a lighter material has enabled important alterations to be made in the structure. As compared to a steel boat of the same type the scantling has been thickened about 25 per cent., in spite of which the total weight of the hull has been reduced about 50 per cent. The builders had the boat weighed when slung on a crane in the docks, the total weight with water in the boiler being 9 tons 8 cwt. Towards this total the hull itself contributed two tons, so it may be taken that an ordinary steel second-class torpedo-boat's hull weighs four tons. The material of which the hull is constructed is, of course, not pure aluminium, but an alloy consisting of 94 per cent. of aluminium and 6 per cent. of copper. A large number of experiments have been made by Messrs. Yarrow and by the French Government, the results of which point to the proportions adopted being found best for the purpose.

The chief result of using the lighter metal has been that a speed of over 20½ knots was obtained on the official trial. In addition to the advantages of increased speed, there are other subsidiary, but by no means unimportant advantages dependent upon the decrease in weight of hull structure. Among these are ease in lifting, additional buoyancy, and freedom from vibration. The latter feature is really remarkable in the new boat, which steams at her highest speed with a degree of vibration, to quote the report of the official trial, "not appreciable"; in fact, when running at her best speed the boat was so steady that one could make notes in the after-cabin with facility. Those who are acquainted with the performance of the average torpedo-boat when

running at speed will appreciate the great advance that has been made in this essential feature, for excessive vibration does much to reduce the efficiency of these high-speed craft as engines of war. No doubt the greater steadiness of this boat is largely due to the improvements in engine balancing introduced of late, but Messrs. Yarrow and Co. attribute it chiefly to the increased scantling and the non-resilience of the alloy used when it is manufactured in the manner requisite for producing ship plates and angles—for aluminium is among the most resilient of metals when treated in some ways. The saving in weight is of increased importance in second-class boats which are designed to be carried on the larger battle ships. The greater buoyancy of the craft was very noticeable. During the trial there was a smart breeze blowing, and in the lower reaches of the Thames where it met the tide there was quite sufficient sea to show off the paces of the little vessel, which appeared to jump from wave to wave rather than drive through them. There is also an advantage in the use of aluminium in regard to facility in taking the ground. The alloy Messrs. Yarrow have used has a tensile strength of 14 tons to the square inch, and has a very high elastic limit, the ratio of elastic limit to tensile strength being higher than in the case of steel. In the construction of vessels it is the elastic limit of the material that largely governs the scantling—that is, the substance worked into the structure—for it is evident that damage begins as soon as the yielding limit is passed. Also in a steel vessel, ample tensile strength could be obtained though the structure were so slight as to retain insufficient rigidity to keep its shape. In this respect mere bulk, divorced from weight, becomes a virtue, and it is largely this which has enabled wood to hold its own, so far as it has done, in the construction of small craft.

The physical advantages of the aluminium alloy are manifest, but the financial side of the question requires further consideration. Mr. Yarrow states that the price of the material for the hull and fittings varied from 3s. to 5s. per lb., and the metal used in this little boat cost over £1,000. If a torpedo-destroyer like the Havock or the Hornet were built of aluminium in place of steel, more than twice as much money would be required for the construction, and naturally this increase in price rises in a vastly-increasing ratio as the vessel grows in size. It is a question for the naval strategists to decide whether they will have two destroyers at, say, 26 to 28 knots or one at 30 to 32 knots, putting aside the other advantages of lighter hull structure.

THE STANDARDS FOR ELECTRICAL MEASUREMENTS.

THE following are the standards fixed by the Electrical Standards Committee in their final report:—

1. *Standard of Electrical Resistance.*—A standard of electrical resistance denominated one ohm being the resistance between the copper terminals of the instrument marked "Board of Trade Ohm Standard Verified 1894" to the passage of an unvarying electrical current when the coil of insulated wire forming part of the aforesaid instrument and connected to the aforesaid terminals is in all parts at a temperature of 15.4 degrees C.

2. *Standard of Electrical Current.*—A standard of electrical current denominated one ampere being the current which is passing in and through the coils of wire forming part of the instrument marked "Board of Trade Ampere Standard Verified 1894" when on reversing the current in the fixed coils the change in the forces acting upon the suspended coil in its sighted position is exactly balanced by the force exerted by gravity in Westminster upon the iridio-platinum weight marked A and forming part of the said instrument.

3. *Standard of Electrical Pressure.*—A standard of electrical pressure denominated one volt being one hundredth part of the pressure which when applied between the terminals forming part of the instrument marked "Board of Trade Volt Standard Verified 1894" causes that rotation of the suspended portion of the instrument which is exactly measured by the coincidence of the sighting wire with the image of the fiducial mark A before and after application of the pressure and with that of the fiducial mark B during the application of the pressure, these images being produced by the suspended mirror and observed by means of the eyepiece.

In the use of the above standards the limits of accuracy attainable are as follows:—

For the ohm, within one-hundredth part of one per cent.

For the ampere, within one-tenth part of one per cent.

For the volt, within one-tenth part of one per cent.

The coils and instruments referred to in this schedule are deposited at the Board of Trade Standardising Laboratory, 8, Richmond-terrace, Whitehall, London.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending September 15th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.36	9.64	0.35	Nil.
South Metropolitan Gas Co.	6	16.36	10.71	0.48	Nil.
Commercial Gas Co. ..	2	16.3	7.75	0.3	Nil.

The supply for week ending Sept. 22nd was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.42	9.74	0.30	Nil.
South Metropolitan Gas Co.	6	16.53	10.86	0.48	Nil.
Commercial Gas Co. ..	2	16.25	7.95	0.45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

A PROFITABLE SILVER MINE.—The recent improvement in the price of silver has led to an inquiry for securities generally which are affected by the state of the silver market. One of such securities is Broken Hill Proprietary shares. These, for some time past, have been in demand, and have now advanced to fully £3. The report of this company for the half-year ending May 31st, however, shows that even with silver at the low level at which it has ruled during the past six months, a substantial profit can be earned. The net profit of this company for the half-year amounted to £397,378., out of which sum £288,000. was paid in dividends and £24,000. as a bonus, and £15,000. carried to reserve. It is stated that the quarry, which practically extends from one end of the property to the other, will be carried to a depth of 300 feet, and at present the greatest depth reached is 100 feet, while not more than thirty feet have been excavated in some portion of the ground. It will readily be seen, therefore, that with an appreciation in the price of silver the profits of the company will be considerably increased.

BRITISH TRADE WITH RUSSIA.—A recent Foreign Office report deals with the principal features of the Russo-German commercial treaty and its probable effect on trade with Russia. The advantages secured under the treaty by Russia for her export trade in agricultural produce are not such, the report points out, as to have any important or direct effect on British trade with either Russia or Germany, but the advantages obtained by Germany for the sale of her manufactures in Russia are of importance to England, who is her chief competitor in the Russian market. The most striking reductions have been made in the duties on iron and steel imported into Russia. As to other concessions, in most cases these concern either articles on which the former duty was so high that the reduction still leaves a sufficient protective margin, or articles the manufacture of which in Russia is insufficient to supply the ordinary demand and which are not considered to be worth especial favour. A sensible gain will accrue to British manufacturers of plain pottery, the duty on which has been considerably lowered. The change in the duty on coal and coke will not in any way affect the demand for English coal and coke. England is now the chief supplier of steel, as well as of the more expensive classes of iron, and the reduction of rates on those articles should prove of advantage to British producers. England delivers about one-half the foreign supply of general machinery, about one-third of agricultural machinery, and practically all the portable engines for threshing machines. The reductions of duty on both combed wools and yarns are also likely to assist the import trade. The fixity of tariffs for ten years will prove valuable to the trade of all countries with Russia.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last, at Mosley-street, Manchester, the Chairman, Sir. J. T. Hibbert, M.P., presiding.

In opening the proceedings, the Chairman pointed to the work which had been accomplished by the Committee during the three years of its existence. He remarked that, whereas in May, 1892, there were 24 authorities in the Committee's district without any scheme for sewage disposal, there was not one now that had not a scheme of some kind in some state of progress. Touching the manufactories, there were only 30 that had not adopted some kind of treatment. Eighty-eight had efficient purification works; there were 227 works with purification plant constructed but not efficient; and in 57 cases works were being constructed. The progress made by manufactories was, he thought, satisfactory. It was very natural for outsiders to think that you had but to issue your order and the thing was done, but the idea was altogether erroneous. Many unavoidable delays in administration had to be contended with. The manufacturers had, as a general thing, met the Committee in a satisfactory way. Some had not done so, and with respect to them the Committee must show a little firmness, and let it be seen that people could not set the Committee's order at defiance. He learned from the Chief Inspector that the largest corporations were the greatest sinners. With regard to the Ship Canal, he was told that the stench still continued, caused by putrifying mud at the bottom. This mud would be carried down for some years to come. One could not expect that after years of pollution they could have the stench removed at once. It would take time to clear the beds of the rivers. At the same time, he was glad to say he heard on all hands that the canal and rivers were in a better condition now than they were a year ago. While recognising the difficulties in the way, and being disposed to treat all parties with the utmost fairness, he yet thought the Committee must show a little more firmness and determination to stir up those bodies that were lagging behind. Having completed the third year of their existence, he thought they might fairly ask that a little more firmness and determination should be shown, and then at the expiration of another three years a very great difference in the condition of the rivers would be apparent.

Mr. Killick said he quite agreed with the Chairman that the time had come when the Committee should use a little more firmness. He thought the result of their labours for three years, especially with regard to the urban authorities, was not altogether satisfactory. He must say the manufacturers in the watershed had met the Committee with alacrity. To them they owed a debt, and it seemed to him they could best pay that debt by seeing that the authorities carried out their purification works. There was very little to complain about in regard to the Local Government Board. He thought the routine necessary in applying for loans and obtaining the sanction of the Local Government Board had been taken advantage of by some authorities to delay the progress of their works. Some authorities had been making experiments, and some—Manchester, for instance—had hardly realised the magnitude of the work they had to deal with. Another thing he wished to say was this, that the work of purification had proceeded more largely in Lancashire than in Cheshire.

The report of the Chief Inspector (Mr. R. A. Tatton) having been adopted, the

REPORT OF THE CONSULTING SUB-COMMITTEE

was presented. According to the recommendations of the report, two Local Authorities were granted extensions of time for three months, four were granted two months, and four more were allowed one month. It was decided that proceedings should be taken against Ramshotom and Bolton.

THE REPORT OF THE CHEMICAL SUB-COMMITTEE

was submitted by Mr. Neville, and the following recommendations were adopted:—

R. Bealey and Co., Radcliffe.—This firm are prepared to let the contracts for the construction of works as soon as they can obtain the land from Lord Wilton's trustees. The Sub-Committee therefore recommended that an extension of time for two months be granted them for the purpose.

I. Levinstein and Co., Ltd., Crumpsall.—In accordance with the resolution passed at the last meeting of the Joint Committee, a letter has been written to this firm stating that they must use greater expedition in carrying out purification works. The Chief Inspector reports that this has now been done, and that the firm state that they expect to have their works in operation in the course of a few weeks. Several complaints, however, have been received as to the pollution caused by the firm, and the Sub-Committee recommend that a letter be written to them to this effect, and stating that upon the report of the Chief Inspector that better progress has now been made the Joint Committee will grant the firm another month to complete and have in operation their purification works.

E. Potter and Co., Ltd., Dinting Vale.—As will be seen from the Chief Inspector's report, a letter has been received from this firm stating that they have already let a portion of the contracts for their purification works, viz., the making of the intercepting sewer. The Sub-Committee recommend that an extension of time for one month be granted them, and that they be informed that during that period they must let the contracts for the construction of the tanks.

Jas. Schofield and Sons, Littleborough.—In accordance with the resolution passed at the last meeting of the Joint Committee, this firm had been summoned to attend the meeting of the Committee. The Clerk (Mr. F. J. Hulton) read a letter giving the necessary undertaking, and one month was allowed.

F. Steiner and Co., Rawtenstall.—This firm was also summoned to attend the meeting of the Joint Committee. A letter, however, had been sent giving an undertaking, and an extension of three months was granted.

John Dalton, Hollingworth Print Works.—The Chief Inspector informs your Sub-Committee that the works which this manufacturer has constructed for the treatment of his effluent are not yet satisfactory. Your Sub-Committee, however, recommend that, before taking further proceedings against him to enforce the order of Court, a letter be written to Mr. Dalton, pointing out to him the severe penalties to which he is liable for non-compliance with the same, and further informing him that the Committee consider that the treatment he has so far adopted is unsatisfactory.

J. Leach, Littleborough.—Your Sub-Committee recommend that a similar letter be written to this manufacturer.

N. Ramsden and Co., Ainsworth and Harwood Vale.—The Chief Inspector informs your Sub-Committee that this firm are now treating the effluent at both their works, but that he has been unable, as yet, to test the efficacy of the treatment. The Sub-Committee therefore recommended that the consideration of their position be adjourned.

W. E. Buckley and Co., Pilsforth.—The Sub-Committee recommend that a further extension of time for one month be granted Messrs. W. E. Buckley and Co., Ltd., to enable them during that period to complete the works for the treatment of their effluent.

Wilkinson Bros.—The Chief Inspector informs your Sub-Committee that this firm have put down tanks in the works, and that whenever his Sub-Inspectors have visited the same they have found that the wash water was being pumped back and used over and over again, and that there was practically no effluent. The Sub-Committee therefore recommended that the consideration of their position be adjourned.

The report of Sir H. E. Roscoe was read by the clerk. It was of a very brief character, having reference to the effluents, &c., analysed. In some cases it had been found necessary to analyse the river water prior to its entering the works to see to what extent the waste effluent was polluted. It was decided to print the report in the proceedings, but not the analyses. Dr. Hewitt pressed for both, but eventually withdrew his amendment.

The sitting of the Committee shortly after terminated.

THE NEW BRITISH IRON CO.'S WORKS.—Reference was made a short time ago to the local effort which was being made to purchase these works (*G. T. J.* 378, p. 100). It now transpires that the works, which are situate at Corngreaves, South Staffordshire, have been bought by Mr. George Allan, lately general manager of the company. Several other capitalists are associated with him, and it is intended, as soon as the necessary repairs can be carried out, to restart the furnaces for making high-class pig-iron. One of the leading marked bar iron firms in Staffordshire have bought the "Lion" brand and other trade marks of the same company, which will be used in connection with the manufacture of other list iron. Both sales are subject to the confirmation of the Chancery Division, under whose directions the receiver of the estate is acting.

THE HAT MAKING INDUSTRY.—During the past month there has been considerable improvement in the condition of the felt hat industry, but there are still many of the factories in Hyde, Denton, and Stockport only partially engaged. It is many years since depression covered such a long period—even in an industry so variable as the hat trade is known to be. Several manufacturers have been running some good lines in ladies goods, but the general shipping trade keeps very quiet, although it is anticipated that the alteration in the American tariffs must eventually improve matters. Luton, as the centre of the straw hat trade, has shared in the general depression, but business has brightened during the last few weeks. There are indications that the felt trade will gradually get a firm hold there, a number of the manufacturers having been successful with ladies' goods. Employers there have the advantage of cheaper labour, but the trade unions centred at Denton have resolved to induce the workers to organise for better pay. A most important mechanical appliance introduced to the hat trade a few days since is one for the recovery of methylated spirits, formerly allowed to go to waste in stoving.

THE CONGRESS OF THE SANITARY INSTITUTE.

SECTION OF CHEMISTRY, Etc.

THIS section met on Friday, September 28th, in the Physics Theatre of the University College, Liverpool, under the presidency of T. Stevenson, M.D., Chemist to the Home Office. The subject of his opening address was the "Self-purification of water, and the agencies by which such purification is effected." During the last twelve or fifteen years the views of most people had, he said, undergone a great change, and many who formerly held the view that a river once polluted with sewage was incapable of self-purification, and that even when filtered the water was still impotable, now held that by sedimentation and filtration such a water was effectually purified and freed from all noxious constituents. Happily, those who administered the municipal affairs of Liverpool took, before the revolution in views he had indicated, the wise and proper course of securing a water supply from unpolluted sources, and obtained a water presumptively free from all danger to public health by organic pollution. Dr. Stevenson glanced at some of the authoritative opinions which had been expressed as to whether or not a water once contaminated could recover its original purity. In considering the degree of safety conferred upon a water polluted with sewage by the natural processes going on in streams, they had, he said, to weigh the results brought about by sedimentation, disintegration, solution, oxygenation, dilution, light, and by the living processes of vegetable and animal organisms contained in the water. Sedimentation was a very important factor in the purification of river water. The amount of suspended and even dissolved organic material carried down by the deposition of finely divided clay and other aluminous and calcareous matter, either accidentally present or artificially introduced into a water, was relatively enormous. In the deposition of sediment countless bacteria were entangled, carried down, and doubtless perished in the end by the action of light, the suspension of their activities, and the withdrawal of the conditions necessary for their growth and multiplication. Assuredly, sedimentation was one of the great beneficent agents increasingly at work in purifying water supplies. Its value could not be over-rated; but it must be admitted that it was not altogether effective. How far simple oxygenation of a water was capable of destroying organic matter and living organisms was undetermined. Agitation and free exposure of as large a surface of the water as possible to the atmosphere were most effective in bringing about water purification. Disintegration was doubtless an important factor, dead and torpid organisms undergoing in sediment a slow or rapid disintegration and destruction. But the effects of disturbance, as by floods, must not be lost sight of, for by disturbance bacteria might again be set afloat in a stream, and, meeting with the necessary conditions and the pabulum for their growth, grow and multiply afresh. Not the least interesting of the processes going on in running water was that brought about by light, an agent very potent in destroying or benumbing the activities of pathogenic bacteria.

Notwithstanding researches, they knew too little of the effects of the dim and diffused light which alone can penetrate through considerable depths of water. Filtration was the last and most important resort for the purification of water supplies. Speaking of the conclusions to be drawn from recent advances in knowledge of river pollution and river purification, Dr. Stevenson said the notion that organic matter in water was *per se* to be regarded as injurious must be laid aside. The potable quality of a water must not be judged by the mere quantity of organic matter therein. The necessity of guarding rivers from all unavoidable pollution, and specially excremental pollution, was rather emphasised than diminished. Light, air, agitation, precipitation, subsidence, and, above all, filtration, could do much in the way of purification; and under favourable conditions these purifying agencies could, and often did, render a polluted water safely potable. But there was a danger in trusting too much to these in leading people to neglect the urgent necessity which everywhere existed of protecting water supplies from pollution. Surely the need to protect rivers from pollution was never greater than at the present time. The wisdom of large communities, such as those of Liverpool, Manchester, and many others, in securing water from unpolluted sources, could not be questioned.

THE HEALTH OF CHEMICAL OPERATIVES.

Mr. A. E. Fletcher, her Majesty's Chief Inspector under the Alkali, &c. Works Regulation Act, read a paper on the health of the workmen in chemical factories, and said that statistics showed that the amount of wear and tear of health and life in them compared favourably with that in other occupations. The general mortality, too, of Widnes compared favourably with that of other manufacturing towns in Lancashire. It would appear that the workers in chemical factories, though exposed to sights, sounds, and smells that might alarm the stranger, yet had not more than their share of the toil and strain that must ever accompany honest work. The workers, doubtless, preferred their employment to the irksome confinement of the city office or the shop counter, and learned to take a wholesome pride in the productive char-

acter of their labour. Much had been done under the Factories and Alkali Works Acts to shelter them from danger, and their employers had in most cases shown themselves solicitous for their welfare. From this general statement exception must be made of those working in contact with lead in any form or with phosphorus, and those continually exposed to dust.

Sir Charles Cameron, in proposing a vote of thanks to Mr. Fletcher for his able paper, remarked that one great omission in the paper was the result of the labours of the reader for preventing great nuisances which occurred in chemical works. The speaker then referred to the pending retirement of Mr. Fletcher from the position he had filled so long with such great advantage to the public at large, and also to the manufacturers. The suggestions made by Mr. Fletcher for preventing the exhalation of gases would be to the advantage of the manufacturers as well as the workmen in the long run.

Mr. Edmund Muspratt seconded, and the vote of thanks was warmly conveyed.

THE ELECTROLYTICAL DETECTION OF MINERAL POISONS.

Dr. C. A. Kohn, University College, Liverpool, read a paper on the application of electrolysis to the detection of mineral poisons. The advances in electrolytic analysis during recent years had had reference to quantitative methods only, and the value of these latter for qualitative work had been to some extent overlooked. These methods were of special value and could be applied with marked advantage to the detection of mineral poisons in cases of medical and medico-legal inquiries. In the cases of antimony, mercury, lead, copper, and cadmium it was possible to detect the presence of one ten-thousandth part of a gramme of the metal with certainty, or one part in 150,000 parts of solution, this degree of delicacy being considerably greater than it was possible to attain with the ordinary methods employed. In presence of organic matter the electrolytic methods could also be employed with advantage. Sir Charles Cameron stated that he would in future adopt Dr. Kohn's method in certain cases, because of its great accuracy.

THE APPLICATION OF COLD STORAGE.

Mr. Frank Tate, analytical and consulting chemist, Liverpool, read a paper in which he dealt with the effects of cold storage upon the food supply. He said: One of the chief articles in the dietary of the people of this country was meat, of which considerably over 2,000,000 of tons was consumed annually in the United Kingdom. Of this quantity in 1892 about 67 per cent. was of home production, and the balance 33 per cent., or about one-third, was imported into the country either as live animals for slaughter, dead meat from various sources, or preserved meat (cooked, &c.). This addition of some 700,000 tons annually to their meat supply was of vast importance to the masses of people in providing them with a source of food at a price more within their means than formerly. The vast quantities of dead meat imported required preservation in transport and on arrival, and cold storage has been the means adopted for the purpose. Meat was not the only food for which cold storage was available, game, fish, cheese, butter, fruit &c., were all preservable by such means, and considerable quantities of fruit and game and other produce had been imported in a satisfactory condition, not only from America but Australasia. It appeared to him that the utility of cold stores in any considerable centre of population was so great that a time would come when a suitable cold storage would be looked upon as a municipal necessity, and no large market for the sale of food would be considered complete without its cold stores. Not only was the establishment of such a very distinct advantage to the population of the town itself, but also to that of the surrounding districts. It was useful not only for the purpose of preserving a food supply, but as a source of cheap and good ice. By a resolution of the section, subsequently endorsed by the Council, Mr. Tate's paper on "Cold Storage" was ordered to be printed *in extenso* in the *Quarterly Journal*, in consequence of its excellent description of the different methods of storage and its well-condensed information.

RIVER POLLUTION.

This subject was brought before the section by Professor Spinks, Lecturer on Sanitary Engineering at the Yorkshire College, Leeds. From personal knowledge he spoke of the waters of the Mersey and its tributaries as "a cross between a sewer and an ashpit," and quoted the report of the Royal Commission on river pollutions appointed in 1865, who spoke of "the rivers Aire and Calder and their tributaries being abused by passing into them hundreds of thousands of tons per annum of ashes, slag, and cinders from steam boilers, furnaces, iron-works, and domestic fires; by their being made the receptacle of a vast extent of broken pottery and worn-out utensils of metal, refuse brick from brickyards and old buildings, earth, lime, and clay from quarries and excavations, road scrapings, street sweepings, &c.; by spent dyewoods and other solids in the treatment of worsteds and woollens; by hundreds of carcasses of animals, as cats, dogs, pigs, &c., which are allowed to float on the surface of the streams or putrify on their banks; and by the flowing in, to the amount of very many millions of gallons per day, of water poisoned, corrupted, and clogged

by refuse from iron and chemical works, dyeing, scouring and fulling worsted and woollen stuffs, skin cleansing and tanning, slaughter-house garbage, and the sewage of towns and houses." Having discussed various instances of the pollution of rivers in different parts of the country, and their deleterious effects on the public health of surrounding areas, Mr. Spinks remarked generally that the narrow streams which passed through our towns and manufacturing districts, instead of being a purifying agent and a blessing, were unfortunately the very reverse, and it was to be feared their loathsome poisonous waters, if not directly the source of disease, served to maintain a low condition of vitality in those dwelling or having occupation upon their banks. In course of time, when our rivers had become clean, a greater value would be set upon the water, and possibly the question of conservancy might be again revived, for there were many uses to which it might be put, such as watering the streets, the flushing of sewers, and, after filtration, for open-air baths, to say nothing of a variety of commercial purposes. The recent opening of the Manchester Ship Canal had quickened public opinion on this particular subject. To some it had appealed in a twofold sense, as sufferers from the nuisances, and as shareholders in the company, by the constant drain upon the revenue caused by dredging the solids brought into the canal. It was quite clear, from the support accorded to the endeavours of the Mersey and Irwell Joint Committee by public opinion as voiced by the Press, that the populace waited anxiously for the time when our rivers should be restored, if not to the condition of their pristine state, at any rate to a condition which should in its quality satisfy the most exacting sanitarian, and in its colour be no longer an offence to the most æsthetic amongst us, so that instead of being a plague and constant danger to health by day and night, the river should be a sweetener of an atmosphere which was sadly too polluted from other sources, when rescued from the degrading uses to which it had been allowed to be put by the indifference of some, the ignorance of others, and the neglect of many.

COMMON SENSE CRITICISM.

Sir Charles Cameron, discussing the general question, commented on the disagreement between bacteriologists as to the facts and effects of water pollution, and observed that the quantity of impurity now thought sufficient by chemists to condemn water was so exceedingly minute that more polluting matter might be taken on two dozen oysters than a man could take by drinking condemned water for a lifetime. (Laughter.) Not only were there several schools of bacteriologists, but there were those who, caring neither for chemical analysis nor bacteriological condition, looked to the pedigree of water. (Laughter.) Suppose on the latter principle they examined the pedigree of the water at Hamburg, where there were 17,000 cases of cholera and 7,000 deaths. The same water from the Elbe was used at Altona, where there was very little cholera; but in Altona the water was filtered, and in Hamburg it was unfiltered. The inference, therefore, was that it was the filtration of the water which saved Altona. Nevertheless, before use in Altona the river had received the trifling increment of the sewage of 800,000 persons. Could there be a worse pedigree? (Laughter.) The Thames received nothing like that amount of pollution, and on the pedigree contention, if the filtration was as good as it was said to be, the water of London was perfectly purified. The probability, however, was that the mortality from cholera at Hamburg was due to conditions apart from the water supply. It was perfectly well proved that many of the most terrible diseases produced by bacteria were produced not directly by the bacilli themselves, but by secondary causes, as, for example, matter formed by microbes.

Mr. Sydney Lowcock (Birmingham) pointed out that the failure of the Rivers Pollution Act was due to its being permissive and at the same time so cumbrous that private persons prejudiced by river pollution could not afford to take advantage of its provisions. The Mersey and Irwell district had now, fortunately, a special and most satisfactory Act, which could be put into operation without red tape.

MORE FATALITIES FROM PETROLEUM.—The death was reported to the Blackburn police, on Sunday, of a married woman, named Mary Brown, of Clayton-le-Moors. She was carrying a lighted paraffin lamp upstairs when it exploded, setting her clothes on fire and causing her to fall from the top to the bottom of the steps.—William Bass, a labourer employed in the Cement Works at Burham, near Rochester, expired in the hospital on Monday from shocking injuries. His clothing caught fire through the accidental upsetting of a paraffin lamp at the works, and before the flames could be extinguished he was fearfully burnt on all parts of the body. He died within a few hours after his admission to the hospital.—On September 23rd, a lad on board the *Arcliffe* upset a paraffin lamp, which set the smack on fire. The vessel was burnt down to the water's edge and sank. Her crew were taken on board the *Little Lizzie*, in which vessel they have arrived at Grimsby.

THE INTERIOR FRICTION OF OILS.

PETROFF, who has occupied himself very extensively with the examination of lubricants, has investigated the interior friction of oils by means of an apparatus invented by himself, and has given his results in tabular form and graphically by a series of curves. According to his results, the degree of transparency of lubricants, the refining process, viscosity, flash-point, and fire-point give no basis for estimating the degree of interior friction, though all are of importance. If two oils which at the same temperature possess different interior frictions be mixed, the mixed product will yield a characteristic curve corresponding to that of an oil the qualities of which lie between those of the two components. Consequently, the excessive friction of any thick lubricant may be reduced by mixing with it small proportions of solar oil, pyro-naphtha or kerosene, or any oil possessing low interior friction. But this addition can be useful only when the added product does not separate to any great extent. The addition of such light oils can, of course, be easily detected through the flash-point and the fire-point. The addition of various resinous materials increases friction in the machinery and in the lubricant itself; while these products have also an injurious chemical effect upon the metallic surfaces subjected to friction. It was also frequently observed that samples of the same oil that were received in the factory at different times did not yield the same characteristic curve, though filling all requirements. This fact is naturally important to consumers on economic grounds.

JAYA CINCHONA COMPANIES.

THE Cinchona Company, Tjikembang, of Rotterdam and Java, worked last year at a net loss of about £770., and is, therefore, unable to distribute a dividend. The directors have recently had offered to them, gratuitously, a cinchona plantation adjoining their own, which had been abandoned by its owners. The eight and nine-year-old succirubras and hybrids, with which the estate was stocked, have been cut down at the root by the owners, but are sprouting up fresh again. The offer has been accepted with thanks. The Cinchona Company, Melattie, more fortunate than some of its competitors, is able to pay its shareholders 5½ per cent. dividend as a result of last year's trading. It has been decided to amalgamate the company with three other estates, and to increase the capital to 650,000 florins (£54,000.). The directors of the Java coffee and cinchona plantation, Tombo, report that last year, owing to a disease in the cinchona trees, they were compelled to harvest nearly 51 tons of bark, which, under ordinary circumstances, would have been left on the trees for some time. The cinchona disease continues to spread in the grown trees on the company's estates, and no fewer than 111,630 young trees have, therefore, been planted last season.

COMMERCIAL FAILURES.—For several weeks past the record of failures in England and Wales, as given in *Kemp's Mercantile Gazette*, has shown a steady decrease as compared with the corresponding periods of last year, until at length the scale, which was previously in the ascendant, turned a week ago to a net decrease in 1894, to date, of 5. This is further improved by the figures given in our morning edition, by which the total failures gazetted during the last week, as compared with the corresponding week of last year, improve the total decrease to 21. The figures are the more satisfactory from the fact that whereas up to the week ending 16th June of this year, there was an almost continuous increase, the decline since then has been, with the exception of one week, wholly uninterrupted. While it is possible to attach too much importance to these records, it may nevertheless be fairly hoped that, in their own way and within their measure, they point to some degree of reviving prosperity.—*Daily News*.

BRITISH AND COLONIAL EXHIBITION.—This exhibition is now in full swing at St. James's Hall, Manchester. It is the most successful exhibition that has been held for some years. The floor space is fully occupied. The centre is occupied by the fairy fountains, displays of which are given nightly. There is a good show of machinery in motion. Among the chemical and allied exhibits Messrs. R. Meldrum Bros. have a good exhibit, with agitators and injectors at work. John Grundy has a collection of heating and ventilating stoves, the chief feature of the exhibit being two patterns of smoke-consuming grates for household use. Messrs. Copley, Turner, and Co. show the Harris patent Feed-water Filter. Messrs. J. Kershaw and Co. show various methods of applying their non-conduction composition for boilers and steam pipes. Jeye's Sanitary Compounds Co. as usual have a tastefully arranged exhibit, while the vestibule of the hall is illuminated by the Incandescent Gaslight Co., who have an attractive display of lamps, &c. 6,000 people paid for admission on Thursday.

ELECTROLYTIC ALKALI.

BY the courtesy of Mr. Castner we have been favoured with some of the working figures of his installation at the works of the Aluminium Company, Ltd., Oldbury, and as the subject is just now one of considerable importance to most of our readers we propose to reproduce them for the public benefit.

Mr. Castner's plant, as may now be generally known, has for its distinguishing features the abolition of a porous diaphragm, and the employment of a moving body of mercury, which alternately absorbs the sodium resulting from the electrolysis of the chloride, and gives it up again as sodium hydrate to the aqueous contents of the cathode cell.

It is claimed for the process that no recombination of the elements takes place, and that in the absence of hypochlorites the difficulties besetting carbon anodes may be considered a vanished quantity. Furthermore, an excellent efficiency is obtained, and the solution of caustic soda formed in the cathode cell is practically free from sodium chloride.

The plant at Oldbury consists of 30 cells arranged in two parallel rows of 15 each. The current is taken from a Crompton dynamo, having an output of 1,100 amp. at 60 volts, the current being divided so as to apply about 550 amp. to each row. Of the 15 cells in each circuit connected in series, 14 are always kept in use, one being held in reserve and ready to put in circuit if for any reason it is necessary to stop one of the 14.

The figures given below are the results from the first row of cells, which has now been running continuously since August 14th, being observed over a period of one week.

The current passes through a recording ammeter, so the exact number of ampere hours are known. The voltmeter is read at regular intervals, and the readings averaged daily. The caustic solution flows into a tank fixed upon a large pair of scales, the weight and gravity being noted every four hours, after which it is allowed to flow into the caustic evaporating pot, where it is finished and transferred to drums. The following table gives the results of a week's working:—

Date.	Number of Cells.	Ampere Hours.	Average Amperes.	Average Daily Voltage.	Yield in Lbs. of Solution of Spec. Grav.	Calculated Solid Caustic.	Efficiency.
Sept. 18	14	189504	564	55.5	3,165 lbs. 1.199	557.9 lbs.	89.3%
" 19	"	192864	574	55.1	3,125 " 1.203	566.1 "	89.2%
" 20	"	192192	572	55.0	3,007 " 1.209	559.2 "	88.0%
" 21	"	191520	570	55.2	2,986 " 1.210	559.7 "	88.6%
" 22	"	189840	565	55.0	2,992 " 1.204	557.0 "	88.9%
" 23	"	194544	579	55.0	3,156 " 1.199	558.1 "	86.9%
" 24	"	192528	573	54.9	3,129 " 1.202	563.1 "	88.6%
Averages Daily—		191856	571	55.1	3,080 lbs. 1.204	560.1 "	88.5%

From the above it is seen that the average E.H.P. per day has been 42.2 equivalent to 49.6 I.H.P., and the average daily product 560 lbs. of caustic. Therefore, each cell has averaged 40 lbs. of caustic per day for an expenditure of 3.55 I.H.P. The analysis of the finished caustic was NaOH 97.58%, Na₂CO₃ 2.37%, and NaCl 0.05% = 78.30% Liverpool test. The second row of cells is essentially the same in construction, and there is no doubt practically would yield the same result if submitted to such an exhaustive trial. The total capacity of the entire plant is thus shown to be in continuous operation (28 cells), 1,120 lbs. of caustic and 930 lbs. of chlorine daily, for an expenditure of 100 I.H.P.

With respect to the electrical efficiency, there certainly seems to be nothing unreasonable in the above figures, and, assuming the mechanical arrangements to work out in the manner claimed for them, the financial success of the process seems to turn upon the durability of the carbon anodes, the working loss of mercury, and, last, but not least, the cost of the E.H.P. With respect to the first of these points, the results so far seem to be encouraging, but the process has not been sufficiently long in operation to allow a mature judgment to be passed. The same thing applies to the working loss of mercury. Seeing that the contents of the anode cell practically never leave the apparatus, it is difficult to see how any considerable loss of mercury can take place, but after reading Dr. S. Rideal's comments upon this process in "Lightning" of last week, one must apparently be prepared for some

remarkable idiosyncrasies on the part of this lively fluid. "The sodium," he says, "formed round the iron cathode just forms a caustic soda solution, and then finally ceases to decompose the water, and amalgamates with the mercury, which flows away and is decomposed by water." In the same connection we notice that the writer of the above-mentioned article appears to have confused a single cell of the installation with the whole apparatus, as he remarks "that although the company have erected at Oldbury a plant capable of producing a daily output of 1,200 pounds of pure caustic soda and 1,000 pounds of chlorine with an expenditure of 110 indicated horse power, at present they have not succeeded in decomposing more than 56½ pounds of salt daily at an expenditure of 3½ I.H.P." Reference to the figures given above will show that this output is the yield of one cell only out of two batteries of fourteen each. With respect to the cost of the E.H.P. hour, we do not propose to say much at present. We will content ourselves by remarking that we find some difficulty in reconciling the figures of such experts as Dr. John Hopkinson, Mr. James Swinburne, and Messrs. Cross and Bevan (who seem to agree fairly well in placing this figure at a farthing) with the Board of Trade returns of the various electricity works in the United Kingdom. Of course we are prepared to admit that the conditions under which a public electric supply company produces and distributes its electricity, are by no means the most favourable for economical returns, but seeing that the total costs per B.T.U. supplied seem to vary from 2½d. to 8d., we think there is certainly ground for considerable reflection before the low figure of one farthing per E.H.P. hour can be accepted. This is a point, however, upon which we are likely, before long, to have more accurate information, as we understand that at least five large installations for the electrolysis of salt are now either working or preparing to commence operations. We refer to the Castner process at Oldbury, the Vautin process near Bolton, the Electro-Chemical Company's works at St. Helens, the Parker process at Wednesbury, and a plant of considerable dimensions which has been installed by the United Alkali Company. If rumour is correct, Messrs. Brunner Mond and Co. are also at work upon the problem, and with respect to those

investigators who are working towards the same end in secret, but have not yet blossomed into fame, we can only say their name is legion.

THE OUTCOME OF STRIKES.—Lord Armstrong, chairman of Sir W. G. Armstrong and Company, Limited, stated at the annual meeting of the shareholders on Thursday last week that none of the battleships recently ordered by the British Government had been allotted to the Tyne, "a circumstance which could only be attributed to the fact that the apprehension of further labour troubles in that strike-torn locality damped the courage of employers to tender at a sufficiently low price." A dividend of 10¼ per cent was declared.

PUSHING BRITISH GOODS IN RUSSIA.—Commenting on the scope for British enterprise in Russia, Consul-General Stewart states that there is no difficulty in finding young Englishmen born in Russia, who can speak the language well and who are accustomed to business, to travel for English firms in Russia, but, except in the case of sheep dips, he has never heard of English firms employing such agency. It is, of course, quite useless sending out travellers unacquainted with the Russian language and the ways of the country, and still more useless to send illustrated catalogues with no prices marked, as purchasers will not take the trouble to write for prices when they can see and obtain German goods only a little inferior to the British goods on the spot.

ANSWERS TO CORRESPONDENTS.

- R.—It was, we think, 1840, or thereabouts. It has expired.
 T. K. G. (Baroda).—It has not arrived yet, but we shall be willing to accede to your request when it does.
 P. N. K.—Many thanks for information.
 V. AND M.—We will do our best for you.
 W. F.—We beg to acknowledge and thank you for your letter.
 A. S.—Consult the Register of the Institute of Chemistry.
 H. G. AND OTHERS.—They are waiting their turn and opportunity.
 INDUSTRY.—They will be given as soon as they have been adjudged. Till then the matter is beyond our control.

Trade Notes.

AN ILLICIT STILL.—William Rees, brewer, was fined £200. at Plymouth, on Thursday, for being in possession of and using an illicit still.

ODAM'S CHEMICAL MANURE COMPANY.—A meeting of the shareholders of Odam's Manure and Chemical Company was held on Wednesday at 116, Fenchurch-street, E.C. The proceedings were private.

MESSRS. KÖNIGSWARTER AND EBELL.—We learn that this firm has been awarded a gold medal by the International Jury at the Antwerp Exhibition for the excellency of the products which formed the exhibit.

AWARDS AT THE HEALTH EXHIBITION.—The following awards have been made to exhibitors, in addition to those given last week. Medals:—The Blackman Ventilating Co., general ventilating fans; Crossley Bros., gas engines; J. H. Pickup and Co., electric fans.

A RAILWAY TO THE DEAD SEA.—The Jaffa-Jerusalem Railway Company has applied to the Turkish Government for a concession for a branch line to the Dead Sea, and for the establishment of a line of steamers on that sea to afford facilities for the trade between Maan, Hedjaz, and Syria.

EFFECT OF ANCIENT OILS ON BACTERIA.—The essential oils, which were prized by the ancients, have been found to kill bacteria by Chamberland, Meunier, and others. The most active essences are those of cinnamon, lavender, marjoram, cloves, geranium, vervain, and tuberose. The vapour of these essences will, it is said, destroy the germs of cholera in an hour.

SERIOUS FIRE AT LEEDS.—Last week a large colour printing works at Leeds was destroyed by fire. The fire spread very rapidly. Very fortunately the adjoining buildings were saved. Had this not been accomplished there is no knowing how far the fire might have extended, as in one of the buildings large quantities of oil, turpentine, benzol, and petroleum were stored.

STOPPAGE OF THE NEW CALEDONIAN NICKEL MINES.—According to intelligence received at Paris, affairs in New Caledonia are in anything but a prosperous condition. The stoppage of work in the nickel mines and the closing of the tinned meat factory have so seriously affected the condition of the men sent out by the different colonisation societies that it is practically certain that they will have to be brought home again at the expense of the Government.

THE LEICESTER WATER FAMINE.—By large reductions in the consumption and by new auxiliary supplies, the Leicester authorities are doing their utmost to avert disaster from water famine. This morning the reserve has been reduced to three days' supply. Several auxiliary pumps are being attached to private wells to force water into the mains without filtration, and the position is daily growing more critical, and the water worse.

THE WORLD'S GOLD PRODUCTION.—The director of the United States Mint has furnished to the American press some figures as to the world's gold production for the year 1894, which show that the output will far exceed that for any previous year. The total will be about £35,000,000., an increase of £4,000,000. over last year. Mr. Preston believes that stimulus to gold production since the fall in the price of silver will continue to result in such an enlarged production that the alarm over a gold scarcity will be effectually quieted.

THE SALE OF GAS RESIDUAL PRODUCTS.—The Shrewsbury Gas Company, in their report for the year, state that the receipts from the sale of gas were more; as were also those for breeze and coke, although they sold 897 tons less. The reason for this was that during certain months they used less coal, and therefore they could not make so much coke; but at the same time they obtained a better price for it. For tar they had received £226. less than in the preceding year, the tar market being in a very bad condition; but as to sulphate of ammonia, the receipts were the most satisfactory in the whole of their accounts. They amounted to £855. more; and this increase was owing to their being able to resume the manufacture of sulphate under the Belton and Davis process.

THE CENTRAL CYCLONE CO., LD.—The Central Cyclone Company, Limited, of Fenchurch-avenue, E.C., has been awarded a gold medal at Antwerp for the excellence of their grinding and pulverising machinery.

A SUGAR REFINERY DESTROYED.—An alarming fire broke out recently at St. Onen, which resulted in the destruction of a large sugar refinery, the Raffinerie Parisienne, situated in the Boulevard Victor Hugo. The damage caused is estimated at over 100,000 francs. Over 200 women and over 50 men have been temporarily thrown out of work.

REDUCING COAL FREIGHTS.—Anent the proposed reductions referred to under the heading of "Trade Notes" last week, at the last meeting of the Swansea Chamber of Commerce, it was reported that the coal rates on the Great Western Railway from Aberdare Valley to Swansea had been reduced 4d. per ton, and from the Llynvi and Ogmore Valleys 3d. per ton. Mr. Burnie congratulated the port on the fact that Swansea would now be able to compete, as far as the coal from these valleys was concerned, on equal terms with the low rates on the Taff Vale and Barry Railways, which would be a considerable advantage.

PROPOSED SYNDICATE IN THE GERMAN LIME INDUSTRY.—A meeting of those interested in the lime trade has been held at Limburg-a/L Germany, with a view to forming a syndicate, as the result of which it has been decided to make an effort to form one. By this means the fixing of a universal price is aimed at, so that a reasonable profit may be ensured for those engaged in the lime trade, without damaging the interests of consumers. The idea is only to finally check the pernicious downward movement in the price of lime. As the first step towards the accomplishment of this end, it is necessary to approach those interested in the question of commission, concerning which matter a definite proposal will be submitted at the next general meeting.

A SINGULAR ACCIDENT.—An incident of an interesting though somewhat gruesome nature occurred recently at the Fabriques de Produits Chimiques de Thann et Mulhouse, at Thann Alsace. An explosion of nitro-benzol took place in a building in which a workman was known to have been. A fire ensued, and when it had been got under it was found that three feet of boiling liquid was on the floor of the building. When it had cooled a search was made for the man's remains, but no trace whatever was found of them. It was then thought he might, after all, have left the place before the explosion. To put the matter to the test carcasses of animals were put into the liquid and it was found that they disappeared in about two hours. Twenty-four hours had elapsed between the first explosion and the first search.

THE ATMOSPHERE OF LARGE CITIES.—Experiments which have been made by Dr. Russell, in London, have established the dependence of metropolitan fogs on the smoke from house fires. The same thing had been traced in Liverpool. The method employed for this purpose consisted in the establishment of stations for investigation in various parts of Liverpool, analyses being made simultaneously at each station. From results obtained at the two stations—the one at University College and the other in Vauxhall-road, where the experiments has been carried out by Dr. G. Schack-Sommer and Mr. S. Stein—it was shown that in the more thickly-populated parts of the city the sulphur oxides existed in quite three times the amount found at University College, and, furthermore, that during clear weather there was a comparative freedom from sulphur oxides as compared with what was found during foggy weather. In regard to Liverpool itself, however, as compared with Manchester and London, the results were fairly low, and the decrease of noxious material which took place in Manchester and London during the summer months was more marked in Liverpool. The work done up to the present time showed the necessity of further investigating a question of such importance, and with that object in view it was proposed to establish several stations, in addition to the two at present existing.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is practically no change in benzols, prices nominally remaining 1s. 2½d. for 90's, and 1s. 2d. for 50/90's. It is a long while since 90's has taken the lead in price. Other tar products generally are in good demand, without material change in prices. Carbolic acid is steady. Crude, 60%, is unaltered at 1s. 7d., and 40% crystals are quoted 5¼d. Other products without change in price. Pitch is very firm, as high as 38s. to 40s. per ton, f.o.b. East Coast, being quoted. January, 1895, 37s. 6d. per ton.

Sulphate of ammonia is weak. The demand is poor, though prices are, to say the least, tempting. Buyers, however, evidently expect a further decline, and are holding off in consequence. Nearest values are:—Beckton £13., London outside makes £12. 17s. 6d., Liverpool £12. 15s. to £12. 17s. 6d., Hull £12. 17s. 6d., and Leith £12. 17s. 6d. to £13. Nitrate is cheaper.

MISCELLANEOUS CHEMICAL MARKET.

The market generally is inclined to be quiet, and there are no changes of importance to report. Bleaching powder finds a steady sale at £7. 10s., softwoods, rails, makers' works, and £8., hardwoods, f.o.b. Caustic soda has fallen off slightly in demand, but prices are unchanged, and current quotations are as follows:—f.o.b. Tyne, 77%, £10. 12s. 6d.; f.o.b. Liverpool, 74%, £9. 12s. 6d.; 70%, £8. 12s. 6d.; 60%, £7. 12s. 6d.; cream, 60%, £7. 10s. per ton, in 10-ton lots and upwards. Soda ash flat, and prices are all in buyers' favour. Soda crystals dull at 40s., bags, and 45s. casks, rails. Salteake still offering at low figures, without finding buyers. Nitrate of soda quiet at £9. to £9. 2s. 6d. per ton. Chlorate of potash moves slowly at 6d. per lb., soda 8d. per lb. Lead and its salts remain quiet: litharge, £13. Foreign white acetate is quoted £24. 10s., c.i.f., English £26., rails, makers' works. Nitrate has advanced some 10s. to 15s. per ton, owing to curtailment of production. There is, however, no improvement in the demand. Borax has been further reduced, and now stands at £20., without much business resulting. White powdered arsenic is not in large request, but price is firm at £14. 5s. per ton, nett, at Garston. Yellow prussiate of potash finds a ready sale at former prices. Ammonia salts still in good demand, and prices are firm: carbonate, 3½d. per lb.; muriate, £23. per ton; salammuniac, £37. and £39. Potash, caustic and carbonate, sell freely at £20. and £17. respectively, c.i.f. Acetates of lime strong, and prices are advancing: £7. 5s. per ton for brown, and £10. 15s. for grey, may be taken as to-day's values. Carbolic acids are firm, and there is but little offering: crude, 70's is quoted at 1s. 9d., and 60's, 1s. 7d. per gallon; crystals, 39/40's, 5¼d. per lb.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, quiet: Scotch warrants closed at 42s. 8½d., Middlesbrough 35s. 10d. cash, and hematite 43s. 7½d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £41. 1s. 3d. to £41. 6s. 3d. cash, and £41. 8s. 9d. to £41. 13s. 9d. three months. Tin, quiet: Straits closed at £71. 2s. 6d. to £71. 12s. 6d. cash, and £71. to £71. 10s. three months; Australian, £71. 7s. 6d.; English ingots, £73. 10s. Lead, firmer: Spanish, £9. 16s. 3d. to £9. 17s. 6d.; English, £9. 17s. 6d. to £10. Silesian Spelter, ordinary, £15. 5s. Nickel, 1s. 5d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 14s. Copper shares, quiet: Cape, 1⅞ to 1⅝; Copiapo, 1⅞ to 2⅞; Libiola, 3¼ to 3½; Mason and Barry, 3 to 3½; Rio Tinto, 14¾ to 15; Tharsis, 4¾ to 5½.

GLASGOW, WEDNESDAY.—Market steady, with fair business. Scotch done at 42s. 8½d., 42s. 8d., and 42s. 8½d. cash, also at 42s. 10½d. one month; closing with buyers at 42s. 8½d. cash, sellers ask 42s. 9d. Cleveland done at 36s. one month; closing with buyers at 35s. 10d. cash, sellers ask 35s. 11d. Cumberland hematite done at 43s. 10½d. one month; closing with buyers at 43s. 7½d. cash, sellers ask 43s. 8½d. Middlesbrough hematite closes with buyers at 42s. 6½d. cash, sellers ask 42s. 7½d.

WOLVERHAMPTON, WEDNESDAY.—The tone of business is upheld, though orders are contracted in view of the quarterly meetings next week. Prices keep up, and pig iron is especially firm. Northampton brands quoted 41s. 6d. to 42s. and upwards; Derbyshire, 42s. to 42s. 6d.; and Lincolns, 43s. Staffordshire part mine pigs, 41s. 6d., and cinder qualities 38s. Marked bars strong at late official quotations: Merchant bars £6. 10s., common £5. 10s. Hoops and thin strip £6. 10s.; galvanised corrugated sheets, doubles, £9. 15s. to £10. Steel in good inquiry.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, and any important business done has been at some concession to buyers. The quotations for mineral phosphates remain unchanged, but they do not induce business, buyers being indifferent about further purchases ahead. Buyers do not follow the higher prices asked for cargoes of River Plate bones, but, on the other hand, sellers are very firm, and we do not

hear of any transactions for United Kingdom. Nearest value of handy cargoes is £4. 11s. 3d., but less would have to be taken for those of large size. £4. 14s. 3d. per ton, ex quay Liverpool, asked for crushed Kurrachee bones for shipment ahead. £4. 15s. per ton, ex quay Liverpool, accepted for Bombay bone meal, and that is closing value. Common grinding bones are worth about £4. 7s. 6d. per ton, ex quay Liverpool. Nitrate of soda is quiet, but fairly steady: on spot the value of ordinary quality is about 8s. 10½d. per cwt., and of fine quality 9s. per cwt. Due cargoes are worth about 8s. 10½d. to 8s. 11¼d. per cwt., according to size and test, and later shipments 9s. to 9s. 3d. per cwt.

A parcel of River Plate dried blood of high test, arrived at Liverpool, sold at 10s. 9d. per unit of ammonia.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, and full prices are asked. Lagos has been selling at £23. 10s. per ton; for November, £23. is quoted. Accra is in fairly good demand at £20. 15s. Olive is firm, with a strong market, at £30. to £34. per tun, according to quality. Linseed is steady, after losing the odd pence again. Liverpool makes in export casks are quoted 21s. 9d. to 22s. 6d. per cwt. Cottonseed is rather quieter, 21s. 3d. to 21s. 9d. now being asked for Liverpool refined. Castor oil is very steady, holders of good seconds Calcutta being firm at 2½d. First pressure French is quoted 2½d. per lb., ex store. Tallow is quietly steady, quotations for North American being 25s. 6d., for South American 26s. to 28s., and for Australian 22s. to 24s. 6d. per cwt. Resin is in moderate demand, with common at 3s. 7½d. per cwt.; other grades are inclined to be easier. Spirits of turpentine keep moving satisfactorily at 21s. 6d. per cwt., and are firm at the price. Petroleum is firm, and in good demand: American 4½d. to 5¼d., according to quality, and Russian refined 3½d. to 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best; 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Oct. 2nd, state:—

Chili Charters for the second half of September are advised as 600 tons, which with 900 tons for the previous fortnight makes 1,500 tons for the month. The total since 31st December is 15,850 tons, against 15,350 tons same time last year. Exchange 12d. Since our last report we have had an irregular market for G.O.B.'s and G.M.B.'s, business being done at from £42. 1s. 3d. cash and £42. 8s. 9d. three months, down to £41. 7s. 6d. and £41. 16s. 3d. respectively, closing dull to-day at 1s. 3d. less for both positions. The total stocks in Liverpool, Swansea, London, and Havre are 48,284 tons, against 48,599 tons on the 16th ult., showing a decrease of 315 tons for the fortnight. The figures for the previous fortnight showed a decrease of 208 tons, making the decrease for the month 523 tons. The stocks include about 1,600 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,063 tons, against 52,349 on the 17th Sept., showing a decrease of 286 tons. The month's figures show a decrease of 329 tons. Refined and manufactured sorts are firm, quotations being:—Tough cake, £44. to £44. 10s.; best select, £44. 10s. to £45.; Indian sheets, £48. to £48. 10s.; strong sheets, £52. 10s. to £53.; and yellow metal sheets, 4½d. per lb.

The sales of furnace stuff comprise:—400 tons Spanish ore, at 7s. 3d.; 100 tons Mexican ore, at 8s.; and 40 tons Argentiferous Chili Regulat, on private terms.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is very little alteration. Shipments during the last week have been heavy and stocks generally have diminished, particularly bleaching powder, of which considerable shipments have been made to Russia.

Soda crystals, locally, £2. 1s., per ton, gross weight. Casside, 76/77%, £10. 10s. Bleach, £7. 5s. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 0s. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt is 9s. 6d. per ton, f.o.b. Tees. A quiet business doing.

COALS.—There is a steady demand all round, though Scotland is now taking considerably less from the Tyne. Best Northumbrian steam, 10s. 9d. to 11s. per ton; second quality, 9s. 9d. to 10s. per ton; small steam, 4s. 9d. to 5s. per ton; bunker coals plentiful, 7s. to 7s. 6d. per ton; gas coal in better demand, 7s. 3d. to 7s. 6d. per ton; coke fairly steady, 13s. 6d. to 15s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Buyers of sulphate of ammonia at the reduction very soon became satiated, and an exceedingly idle market has succeeded, with a further dropping. Towards the close of the week holders came down to £13. 2s. 6d. without inducing any new business to speak of, and the price to-day is undoubtedly below that. Probably the near prospect of a *bonâ-fide* termination to the coal strike, now generally thought to be discernible, is having a depressing effect on sulphate in the market, for there is no doubt, as the strike has been largely curtailing the output, its close will at once greatly increase the same.

Reports as regards general chemicals are on all hands more or less unfavourable. The feeling is easier all round, and buyers who can do so are holding off. Already, outside makers of soda crystals, bleaching powder, and caustic soda are straining the union prices, and a general easing off is looked for. Caustic sodas are all cheaper. Borax and boracic acid are both down.

The improvement in mineral lubricating oils and solid paraffins continues. Two of the works have had to stop for want of fuel, but one of these has since managed to restart.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 15s., 70/72° £8. 12s. 6d., 60/62° £7. 12s. 6d.; and cream 60/62° £7. 10s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £13. 1s. 9d. to £13. 2s. 6d. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¼d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2¼d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ¾d. to ¾d. lower); ditto (lubricating) 865° £3. 10s., to £3. 15s.; 885° £4. to £5., and 890/895° £4. 5s. to £5. 10s. Week's imports of raw sugar at Greenock were again *nil*.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The prices gained during last week have not been sustained, and have receded to the same positions as they were before the spurt. The imports compared with same time a year ago are: Linseed, 358,704 quarters against 295,767 quarters; rapeseed, 102,295 quarters against 48,815 quarters; cottonseed, 132,186 tons against 120,893 tons; olive oil, 16,555 casks against 8,120 casks; rape oil, 5,936 casks against 5,208 casks; oilcakes, 13,365 tons against 15,622 tons; tallow, 19,745 cwt. against 24,927 cwt.; turpentine, 15,081 barrels against 11,826 barrels. Linseed oil has lost the greater part of last week's advance, but closes firm at 19s. 7½d. naked spot; Oct-

Dec. 19s. 1½d.; January-April, 18s. 10½d.; and May-August, 19s. 1½d. Boiled ditto £1. per ton higher; casks 17s. 6d. and ordinary barrels 22s. 6d. per ton extra. Export for the week 1,160 cwt. Refined cotton oil has declined about 10s. per ton, closing steady at 18s. 10½d. naked spot. October offers at 18s. 9d., November-April 17s. 7½d. to 17s. 9d.; edible qualities £1. to £1. 10s. per ton extra; crude 16s. 10½d. Rapeseed has maintained its advance, and continues in good demand. Vegaline, a new neutral vegetable fat, and perfectly sweet and white, is quoted at 30s. Cod oil very quiet, £16. to £19. Sod oil also quiet and unchanged. Soft soap, 14s. 6d. per cwt. Boiled drying oil £12. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes quiet but steady, 95%, pure £6. 12s. 6d. to £6. 17s. 6d.; Russians, £6. 5s. to £6. 12s. 6d.; oilcakes, £5. 12s. 6d. Cotton cakes: Spot steady, best makes £4.; forward weak. Buyers remember that the record has been broken in the prices of all kinds of seed cake and grain, with the two exceptions of cottonseed and cotton-cake, and are therefore holding off.

PAINTS.—Prices are: White lead unchanged. Dry Colours: Venetian red, from £3. 17s. 6d.; blue black, £4.; mineral black, £3. 15s.; yellow ochre from £3. 15s. Paint remover, 30s. per cwt. Ready mixed paints from £24. per ton. Black varnish from £5. per ton, in barrels. Oak varnish, 5s. 6d. per gallon.

New Companies.

Avon Patent Fuel and Briquette Company, Limited.—CAPITAL £5,000., in shares of £1. each. This company has been formed to establish and work patents connected with the manufacture of fuel and briquettes at Bath.

F. Rosher and Company, Limited.—CAPITAL £60,000., in 6,000 shares of £10. each. This company has been formed to take over the business of F. Rosher and Company, lime and cement merchants, at Blackfriars, London, and the Channel Islands. The subscribers to the memorandum of association are:—F. H. Rosher, Old Jamaica Wharf, Blackfriars, lime merchant; F. E. Rosher, Old Jamaica Wharf, Blackfriars, cement merchant; H. G. Rosher, Haslemere, Surrey; T. H. Harrison, 12, Carlingford-road, N.W., clerk; H. C. Cooley, 53, Trinity-square, S.E.; H. Murton, 4, Watford-villas, S.W., clerk; M. Jenks, 46, Holborn-viaduct, E.C., accountant.

John Young (of Radcliffe), Limited.—CAPITAL £70,000., in 14,000 shares of £5 each. This company has been formed to purchase the works of T. Pilkington Young and E. Colman, and to carry on the business of bleachers, dyers and finishers. The subscribers to the memorandum of association are:—T. P. Young Wallfield, Stand, Manchester, manufacturer; E. Colman, Westover, Stanton-avenue, Didsbury, manufacturer; R. C. Samuels, 33, Claremont-grove, Didsbury, salesman; T. Garstang, 162, Ainsworth-road, Radcliffe, manager; J. Pearson, 176, Ainsworth-road, Radcliffe, cashier; G. Garstang, 7, Norris street, Little Lever, manager; H. Garstang, 66, Trafford-street, Farnworth, manager.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Apparatus for the Distillation of Coal, Lignite, etc. W. R. Hutton. 17,617. September 17.
Apparatus for Storing Oils or Spirits. T. Perry. 17,636. September 17.
Manufacture of Articles from Mica, etc. D. Jaroslaw. 17,670. Sept. 17.
Apparatus for the Carburation of Gases. F. Bremme. 17,679. Sept. 17.
Apparatus for Removing Solid and Gaseous Impurities from Illuminating Gas. J. W. Scott. 17,693. September 18.
Improvements in Paint. F. W. Oliver. 17,747. September 18.
Artificial Fuel. W. B. Hartridge. 17,759. September 18.
Apparatus for the Manufacture of Artificial Fuel. W. B. Hartridge. 17,760. September 18.
Improved Aluminium Solder. W. P. Thompson. 17,820. September 19.
Drying Apparatus. W. W. Wardle. 17,836. September 19.
Manufacture of Soap and Glycerine. J. K. Hill. 17,850. September 20.
Improvements in the Safe Conveyance of Petroleum in Ships. C. C. Murray. 17,877. September 20.
Apparatus for Washing Wool and Fibres. J. C. Walker. 17,906. September 20.
Apparatus for Washing Wool and Fibres. J. C. Walker. 17,907. September 20.
Apparatus for Extracting Juices from Cane Roots, etc. J. Drummond. 17,937. September 21.
Extracting Gold, Silver, Lead, etc., from Zinc Sulphide Ores. H. R. Angel. 17,961. September 21.

White Lead—

Holland,	20 cks.	Burrell & Co.
Germany,	44	M. Ashby, Ltd.
"	10	H. Lambert
"	27	P. Jantzen
"	30	D. Storer & Sons
France,	38	J. Watt & Sons

Wood Pulp—

Germany,	105 pkgs.	W. Friedlander
"	368	H. E. Everett
Norway,	1,600	Daily Telegraph
"	246	W. G. Taylor & Co.
"	800	Henderson, Craig & Co.
Holland,	172	
"	1,338	Little & Johnston
"	1,338	E. J. & W. Goldsmith
Norway,	38	Thames S. T. & L. Co., Ltd.
Denmark,	280	G. F. Green

Zinc Oxide—

Holland,	50 brls.	M. Ashby, Ltd.
Germany,	200	
"	43 cks.	J. Matton
"	15	Beresford & Co.

Zinc Sulphate—

Sweden,	41 pkgs.	M. Dk. Co.
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LIVERPOOL.*Week ending September 20th.***Antimony—**

Antofagasta,	258 sks.	F. Huth & Co.
"	257	A. Gibbs & Co.
"	521	Aillon, Aramayo, & Co.

Barytes—

Antwerp,	49 bgs.	
Rotterdam,	66 cks.	

Bone Ash—

Campana,	653 bgs.	
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Bone Meal—

Karachi,	4,000 bgs.	
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Borate of Manganese—

Bremen,	1 ck.	
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Borax—

Mollendo,	675 bgs.	F. Huth & Co.
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Caoutchouc—

Valparaiso,	523 sks.	
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Valparaiso,	7 bls.	W. Brandts, Sons, & Co.
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"

"	12	Kleinwort, Sons & Co.
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"	6	F. M. Wolff
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Carbon Black—

Boston,	1 bx.	
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Castor Oil—

Marseilles,	374 brls.	
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Cream of Tartar—

Barcelona,	5 cks.	
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Dried Blood—

Campana,	256 bgs.	
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Dyestuffs—

Algarroballa		
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Cutch

Rangoon,	350 bxs.	Balfour, Williamson
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Diyl Diyl

Pt. Said,	1	Bibby Brs.
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Extracts

Bombay,	277 bgs.	J. C. Kiddle
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Baltimore,

"	24 brls.	Hervey, Peek & Co.
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Bordeaux,

"	75 cks.	
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Marseilles,

"	20 brls.	
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Hamburg,

"	30 cs.	
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Madder

Marseilles,	3 brls.	
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Myrabolams

Bombay,	3,501 bls.	Forbes, Forbes, & Co.
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"

"	2,220	D. Sassoon & Co.
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"

"	1,209	340 bgs. E. D. Sassoon & Co.
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"

"	2,333	8,241 bgs.
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Orchella

Lisbon,	227 bls.	
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Saffron

Valencia,	2 cs.	
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Valonia

Syra,	160 bgs.	G. H. Sorini
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Smyrna,

"	3,607	50 t. Barry Brs.
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"

"	152	G. Essayan & Co.
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Farina—

Stettin,	9,300 bgs.	Browne, Geveke, & Co.
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Glucose—

New York,	200 brls.	
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Lamp Black—

Philadelphia,	10 brls.	M. Ashby
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Manganese—

Iquique,	1,500 t.	
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Manganese Ore—

Vizagapatam,	999 t.	Darwen & Mostyn Iron Co.
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Nitrate—

Iquique,	4,609 sks.	
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Ochre—

Marseilles,	6 cks.	J. L. Lyon & Co.
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"

"	18	
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Bordeaux,

"	35	
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Paraffin Scale—

Philadelphia,	300 cs.	1,050 brls.
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umbago—

Colombo,	14 brls.	
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otashes—

Montreal,	2 brls.	H. Moore & Co.
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"

"	25	
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Antwerp,

"	6 dms.	
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Dunkirk,

"	2 cks.	48 dms.
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Pyrites—

Huelva,	4,365 t.	Matheson & Co.
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"

"	650	
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Rosin—

New York,	1,000 brls.	
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Boston,

"	3,350	
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Brunswick, Ga.,

"	7,213 brls.	
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Saltpetre—

Hamburg,	20 cks.	
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Soap—

Marseilles,	303 cs.	Millward, Bradbury
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Lagos,

"	2 kgs.	
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Philadelphia,

"	13	
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Starch—

Hamburg,	296 cs.	
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Antwerp,

"	23	J. T. Fletcher & Co.
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New York,

"	1,000 bgs.	
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Stearine—

New York,	25 bds.	
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Antwerp,

"	90 bgs.	
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Sulphur Ore—

Huelva,	1,440 t.	Matheson & Co.
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Talc—

Marseilles,	50 kgs.	A Bentick
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Tallow—

Zarate,	262 pps.	J. Nelson & Sons, Ltd.
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Campana,

"	68 cks.	
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Tartar—

Bordeaux,	21 cks.	
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Tartaric Acid—

Rotterdam,	2 cks.	
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Ultramarine—

Rotterdam,	20 cks.	30 cs.
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Bremen,

"	1	
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Verdigris—

Bordeaux,	2 cks.	
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Waste Salt—

Hamburg,	1,524 bgs.	
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White Lead—

Rotterdam,	65 cks.	
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Wood Pulp—

Montreal,	8,885 bds.	A. Rice & Co.
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Zinc Oxide—

Antwerp,	15 brls.	
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Antwerp,

"	50	50 cks.
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Zinc White—

Antwerp,	47 cks.	
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MANCHESTER.*Period ending September 19th.***Colours—**

Rotterdam,	26 cs.	34 cks.
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Antwerp,

"	4	11
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Limestone—

Antwerp,	1 cs.	
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Logwood—

Champtan,	350 t.	
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Waste Salt—

Harburg,	280 t.	
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HULL.*Week ending September 22nd.***Acetic Acid—**

Rotterdam,	20 brls.	Hutchinson & Son
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Barytes—

Antwerp,	290 bgs.	66 cks. Bailey & Leatham
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Rotterdam,

"	150	70 W. & C. L. Ringrose
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Bremen,

"	46 cks.	Tudor & Sons
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Beta-Naphthol—

Rotterdam,	1 ck.	W. & C. L. Ringrose
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Binitro Toluol—

Rotterdam,	15 cks.	W. & C. L. Ringrose
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Bone Meal—

Kurrachee,	500 bgs.	
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Carbonic Acid Gas—

Rotterdam,	75 tubes.	Wilson, Sons, & Co., Ltd.
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Chemicals (otherwise undescribed)

Hamburg,	10 cks.	Wilson, Sons, & Co., Ltd.
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Danzig,

"	19	Veltmann & Co.
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Bremen,

"	1	Veltmann & Co.
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Dunkirk,

"	33 pks.	Wilson, Sons, & Co., Ltd.
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Antwerp,

"	30	
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Cod Oil—

Drontheim,	5 brls.	Wilson, Sons, & Co., Ltd.
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Christiansund,

"	5	
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Colours—

Rotterdam,	6 cs.	131 pks. 59 cks. W. & C. L. Ringrose
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"

"	11	24 14 19 brls. Hutchinson & Son
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Stettin,

"	8 dms.	Wilson, Sons, & Co., Ltd.
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Antwerp,

"	10	Bailey & Leatham
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Danzig,

"	20 cks.	
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Bremen,

"	1	Veltmann & Co.
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Amsterdam,

"	1 kg.	W. & C. L. Ringrose
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Antwerp,

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Potassium Bicarbonate—

Melbourne, 5 c. £8

Potassium Chlorate—

Melbourne, 5 c. £14

Madras, 25 kgs. 69

Potassium Prussiate—

Sydney, 5 c. £25

Saltpetre—

Melbourne, 3 t. 10 c. £80

Sydney, 3 69

Madeira, 10 15

Sheep Dip—

Hobart, 1 t. 2 c. £30

Punta Arenas, 53 cs. 16 drs. 209 pkgs 712

New Plymouth, 40 cs. 80

Masterton, 25 50

Palmerston North, 50 cs. 100

Haivera, 50 100

Lyttelton 50 drs. 32

B. Ayres, 100 175

E. London, 3 t. 15 c. 210

Wellington, 300 cs. 21 pkgs. 641

Soda Ash—

Adelaide, 1 t. 5 c. £9

Soda Crystals—

Sydney, 234 t. £487

Fremantle, 3 13 c. 10

Sodium Acetate—

Melbourne, 1 t. 3 c. £18

Sodium Bicarbonate—

Trinidad, 1 t. 4 c. £9

Hobart, 10 8

Brisbane, 14 3 84

Strontium Nitrate—

Madras, 15 kgs. £19

Sulphuric Acid—

Singapore, 1 t. 5 c. £13

Superphosphate—

Auckland, 40 t. £195

Tartaric Acid—

Melbourne, 4 t. 15 c. £445

Lyttelton, 1 100

Timaru, 1 6

Napier, 3 17

Algoa Bay, 1 kg. 5

B. Ayres, 1 2 111

LIVERPOOL.

Week ending September 26th.

Acetic Acid—

Lisbon, 2 t. 5 c. £26

Santos, 20 cs. 12

Alum—

Porto Alegre, 3 t. 10 c. £18

Montreal, 4 1 1 q. 19

Porto Alegre, 3 10 16

Calcutta, 32 4 2 168

Bombay, 17 18 85

Malta, 1 5

B. Ayres, 2 5 10

Patras, 1 9 3 8

Santos, 2 18 2 6

Tampico, 25 362

Galatz, 1 3 5

Alexandria, 6 10 46

Lisbon, 8 3 39

Alumina Sulphate—

Montreal, 10 t. 18 c. 1 q. £40

Aluminous Cake—

Calcutta, 92 t. 15 c. 1 q. £83

Ammonia (Liquid)—

Coquimbo, 8 c. £27

Ammonium Carbonate—

Odessa, 1 t. 8 c. 3 q. £52

Toronto, 10 1 18

Cadedello, 2 2 10

Ammonium Chloride—

Kerasunde, 5 c. £18

Beyrout, 15 28

Smyrna, 1 t. 36

Ammonium Sulphate—

Demerara, 41 t. 4 c. 3 q. £585

Valencia, 119 14 2 1,599

Sourabaya, 270 1 3,781

Barcelona, 71 15 1 1,068

Rotterdam, 125 6 1 1,738

Malaga, 51 4 3 664

Genoa, 20 1 2 265

Bordeaux, 15 15 198

Las Palmas, 5 19 3 83

Antimony—

Bombay, 2 cks.

Asbestos—

Campana, 3 pkgs.

Bleaching Powder—

Boston, 544 cks.

Calcutta, 125 cs.

Dunkirk, 17

Genoa, 6

Havana, 40 brls.

New York, 167

Palermo, 7

Philadelphia, 56

Stettin, 10

Boracic Acid—

Rotterdam, 1 t. 1 c. 3 q. £35

Vera Cruz, 5 1 7

Borax—

Antwerp, 3 t. 6 c. 2 q. £67

Rotterdam, 4 42

Stettin, 1 3 2 24

Antwerp, 18 4 2 389

Calcium Chloride—

Rangoon, 5 t. 2 c. £50

Carbolic Acid—

New York, 3 t. £165

Hioigo, 1 2 q. 55

Yokohama, 1 2 55

N. Orleans, 12 6 1 587

Baltimore, 9 cs. 53

Rotterdam, 11 591

Samarang, 5 10 84

Caustic Soda—

Amsterdam, 106 dms.

Barcelona, 50

Bombay, 10

Boston, 225

Bremen, 10 brls. 12 kgs.

Callao, 86

Cleveland, 50

Demerara, 10

Genoa, 443

Hamburg, 30

Havana, 190

La Guayra, 20

Leghorn, 85

Malta, 35

Naples, 59

New York, 425 100 50 bxs.

Philadelphia, 50

Rangoon, 14

Rio Grande do Sul, 20 dms.

Rotterdam, 90 dms. 10 cks.

Samarang, 40

Singapore, 10

Tarragona, 30

Valencia, 30

Victoria, B.C., 10

Yokohama, 100

Chemicals (otherwise undescribed)

Gothenburg, 8 c. £15

Odessa, 3 t. 111

Newfairwater, 1 37

Colon, 12 14

Coquimbo, 21 kgs. 68

Montreal, 1 37

Stettin, 19 2 q. 38

Oporto, 4 7

Philadelphia, 12 18 440

China Clay—

Bombay, 88 t. 7 c.

Boston, 378 19

St. Petersburg, 266 bgs.

Coal Products—

Creosote Oil

Bordeaux, 150 cks.

Pitch

Antwerp, 260 t.

C. C. Castle, 44 brls.

Tar

Akassa, 6 brls.

C. C. Castle, 20

Sherbro, 40

Coal Products (otherwise undes.)—

New York, 19 cs. 30 cks.

Colours—

Montreal, 1 cs.

Para, 1

Copperas—

Smyrna, 6 t. 10 c. £10

Candia, 1 2

Copper Sulphate—

Marseilles, 10 t. 1 c. 1 q. £146

Havana, 9 1 7

Palermo, 20 8 320

Cadedello, 6 5

Constantinople, 14 3 10

M. Video, 18 2 15

Ibrail, 8 6

Amsterdam, 2 4 3 34

Disinfectants—

Calcutta, 1 cs. £12

Gypsum—

New York, 28 t. 14 c. £84

Lime—

Old Calabar, 7 t. 10 c. £8

Port Natal, 11 7 35

Savannah, 4 pns.

Magnesium Carbonate—

St. Petersburg, 6 t. 5 c. £162

Vera Cruz, 10 3 q. 20

Manganese Ore—

Lisbon, 5 kgs.

Manure—

Malaga, 20 t. £170

Havre, 300 6 1 q. 1,574

Las Palmas, 4 33

St. Malo, 299 12 1 1,400

Genoa, 128 43 951

Metallic Sodium—

Rotterdam, 3 t. 5 c. 3 q. £775

Mineral White—

Malaga, 10 bgs.

Muriatic Acid—

Santos, 1 t. 2 q. £22

Coquimbo, 9 c. 3 17

Nickel—

New York, 18 cks.

Nitric Acid—

Bahia, 3 c.

Coquimbo, 11 1 q. £31

Paint—

Callao, 3 cks.

Cavite, 40 dms

Colombo, 15

Gd. Canary, 22

Hamburg, 18 kgs.

Havana, 10 55

Havre, 6

Marseilles, 21 tins.

Rosario, 5 cs.

Sagua la Grande, 8

S. John's, N'd., 2 1

Painters' Colours—

Coquimbo, 16 cks.

Havana, 10

Lagos, 4

Marseilles, 1

Matanzas, 30 kgs.

Mollendo, 2 16 cs.

Para, 16 40 8 brls.

S. John's, N'd., 23 8

Salonica, 2 1

Singapore, 2

Vostizza, 3

Paraffin Wax—

Palermo, 5 bgs.

Pernambuco, 20 cs.

Smyrna, 15

Phosphate—

Belize, 1 t. 3 c. £31

Pieric Acid—

New York, 17 c. 3 q. £85

Potassium Bichromate—

Santos, 1 t. 19 c. 3 q. £176

Potassium Carbonate—

New York, 18 t. 12 c. £340

Potassium Chlorate—

New York, 27 t. 5 c. £1,557

Boston, 15 916

Copenhagen, 1 10 85

Ystad, 1 11 87

Rotterdam, 1 10 23

Calcutta, 10 360

Sydney, 10 580

Hioigo, 6 5 362

Shanghai, 6 10 27

Alexandria, 5 200

Constantinople, 5 31

Lisbon, 1 11 56

Randers, 1 1

Pernambuco, 1 4

Potassium Prussiate—

New York, 15 t. 1 c. 1 q. £1,300

Potassium Silicate—

Amsterdam, 1 t. 7 c. 1 q. £6

Salt—

Algoa Bay, 1 t. 10 c.

Antwerp, 50

Barbadoes, 25

Boston, 120

Copenhagen, 5

Delagoa Bay, 50

Demerara, 35 15

E. London, 8 18

Gd. Bassam, 10

Lagos, 100

London, Ont., 100

M. Video, 6 13

Montreal, 438 6

Newport News, 405

Old Calabar, 24

Portland, Or., 62

Rangoon, 550

San Francisco, 10

Sierra Leone, 50

Valparaiso, 2 2

Saltcake—

Baltimore, 252 t. 7 c. £321

Saltpetre—

Cadedello, 2 t. 17 c. 1 q. £67

Carthagena, N.G.,

Superphosphate			
Valencia, 50 t. 1 c.	£119		
Tannic Acid —			
Valleyfield, 3 c.	£16		
Tin Crystals —			
Trinidad, 1 t. 14 c. 3 q.	£110		
Varnish —			
Pireus, 1 cs.			
Sourabaya, 25 dms.			
Whiting —			
Valparaiso, 100 brls.			
Zinc Chloride —			
Huelva, 14 c.	£11		
Bombay, 2 t. 2 2 q.	25		
Zinc Oxide —			
Pernambuco, 9 c. 3 q.	£9		

MANCHESTER.

Period ending September 27th.

Ammonium Carbonate —			
Antwerp, 48 cks. 2 cs.			
Hamburg, 6			
Ammonium Sulphate —			
Paris, 232 t.			
Rotterdam, 221			
Carbolic Acid —			
Paris, 125 bbls. 2 cs.			
Copperas —			
Bahia, 3 cks.			
Logwood Extract —			
Bahia, 3 cks.			
Pitch —			
Antwerp, 104 t. 2 c.			
Sumac Extract —			
Bahia, 3 cks.			
Tar —			
Treport, 5 t. 7½ c.			
Tar Oil —			
Rotterdam, 50 brls.			
Treport, 75			

HULL.

Week ending September 22nd.

Alkali —			
Catania, 12 cks.			
Harlingen, 15			
Ammonium Sulphate —			
Dunkirk, 118 bgs.			
Rouen, 109			
Stettin, 194			
Basic Slag —			
Stettin, 247 t.			
Borax —			
Abo, 1 ck.			
Bleaching Powder —			
Boston, 46 cks.			
Fiume, 42			
New York, 10			
Riga, 75 kgs.			
Stettin, 11			
Caustic Soda —			
Abo, 2 cks.			
Danzig, 175 dms.			
Reval, 200			
Riga, 100			
Venice, 52			
Chemicals (otherwise undescribed)			
Amsterdam, 1 ck.			
Abo, 7 10 cs.			
Bremen, 1			
Copenhagen, 10 1 6 pkgs.			
Christiania, 21 20			
Danzig, 16 3 5			
Gothenburg, 20 203 slbs.			
Hamburg, 17 116 4			
Harlingen, 20			
Libau, 20			
New York, 25			
Riga, 54 1 1			
Rotterdam, 50			
St. Petersburg, 33			
Stettin, 6 24			
Cottonseed Oil —			
Antwerp, 202 c.			
Bremen, 120			
Danzig, 51			
Drontheim, 40			
Hamburg, 965			
Konigsberg, 100			
Rotterdam, 1,877			
Stettin, 450			
Stockholm, 35			
Trieste, 400			

Dyestuffs (otherwise undescribed)

Amsterdam, 1 ck.			
Boston, 14			
Danzig, 2			
Dunkirk, 1 cs.			
Rotterdam, 24			
Rouen, 8			
St. Petersburg, 137 7			
Linseed Oil —			
Copenhagen, 3 c.			
Christiansund, 52			
Christiania, 699			
Drontheim, 121			
Hamburg, 243			
Rotterdam, 51			
Trieste, 34			
Venice, 34			
Mineral White —			
Harlingen, 200 bls.			
Stettin, 50			
Naphtha —			
Copenhagen, 10 cks.			
Painters' Colours —			
Amsterdam, 2 cks.			
Antwerp, 49 2 cs. 41 pkgs.			
Boston, 31			
Copenhagen, 10			
Christiania, 21			
Danzig, 1			
Drontheim, 5			
Hamburg, 8 1			
Gothenburg, 1			
Ghent, 21			
Hamburg, 1 1			
Konigsberg, 11			
Norrkoping, 1			
Palermo, 4			
Rotterdam, 25 1			
Rouen, 7 1			
Stettin, 33			
Stockholm, 2 1			
Soap —			
Drontheim, 40 cs.			
Superphosphates —			
Aalborg, 355 t.			
Tallow —			
Gothenburg, 5 cks.			
Tar —			
Hamburg, 5 cks.			
Rotterdam, 4			
Varnish —			
Antwerp, 3 cks.			
Christiania, 1 1 cs.			
Drontheim, 2			
Gothenburg, 1 4 dms.			
Ghent, 1			
Stockholm, 1			

GLASGOW.

Week ending September 27th.

Ammonium Chloride —			
Montreal, 1 t. 17½ c.	£50		
Ammonium Sulphate —			
Demerara, 55 t. 18½ c.	£774		
France, 85 15	1,118		
Madras, 3	30		
Bleaching Powder —			
Melbourne, 33 t. 1¼ c.	£398		
Castor Oil —			
Adelaide, 1	£70		
Coal Products —			
Alizarine			
Lisbon, 1 ck.	£55		
Rotterdam, 1 ck.	16		
Alizarine Colours	£205. 155.		
Aniline Salts			
Lisbon, 7½ c.	£25		
Pitch			
Amsterdam, 150 t.	£210		
Tar			
Canada, 1	£42		
Calcutta, 3 t.	15		
Coal Tar Products (otherwise undescribed)			
Rotterdam, 17 dms.	£105		
Dyestuffs —			
Extracts			
Montreal, 17 t. 15½ c.	£328		
Fustic Extract			
Montreal, 3 t. 12 c.	£135		
Logwood			
Montreal, 5 t. 19¼ c.	£49		
Lead Acetate —			
Lisbon, 17 c.	£20		
Linseed Oil —			
Adelaide, 6 t. 3 c.	£145		
Melbourne, 2 11	86		
Canada, 12 18½	222		
Demerara, 7 7	239		

Litharge—

Montreal, 8 t. 18½ c.	£105		
Canada, 13 7½	175		
Manure —			
Demerara, 15 t. 8 c.	£159		
Nitrate of Lead —			
Melbourne, 1 t. 3 c.	£20		
Paint —			
Penang, 9 t. 1½ c.	£108		
Demerara, 7 2	132		
Trinidad, 1	£44		
New York, 1 16½	£34. 105.		
Colombo, 88			
Painters' Colours —			
Japan, 6 t. 18 c.	£113		
Amsterdam, 3 dms.	£2. 115.		
Calcutta, 1	£119		
Trinidad, 39			
Paraffin Wax —			
France, 10 t. ¼ c.	£228		
Rotterdam, 6	120		
Potassium Bichromate —			
Montreal, 5 t. 4¼ c.	£198		
Melbourne, 42			
Antwerp, 4 18½	196		
France, 12 17	420		
Rosin Oil —			
Rotterdam, 40 brls.	£72		
Amsterdam, 20	40		
Salt Cake —			
Melbourne, 25 t. 16 c.	£50		
Soap —			
New York, 6 t. 12 c.	£90		
Soda Ash —			
New York, 18 t. 13 c.	£70		
Sodium Bichromate —			
Antwerp, 5 t. ¼ c.	£164		
Sulphur —			
Demerara, 7 t. 4¼ c.	£37		
Tallow —			
Rotterdam, 6 t. 14 c.	£240		
White Lead —			
Hong Kong, 2 t. 10 c.	£44		
Huelva, 1 2	21		
Montreal, 5 2½	£86. 105.		
Melbourne, 4 11	£92		
Rotterdam, 14 cks.	29		

TYNE.

Week ending September 22nd.

Alkali —			
Antwerp, 2 t. 4 c.			
Rotterdam, 6 14			
St. Petersburg, 29 14			
New York, 185 12			
Antimony —			
Abo, 12 c.			
New York, 30 t.			
Barium Binoxide —			
Antwerp, 6 t. 3 c.			
Barytes Carbonate —			
Hamburg, 100 t.			
Copenhagen, 2			
Bleaching Powder —			
Antwerp, 15 t. 5 c.			
Genoa, 16 13			
Hamburg, 20 7			
Gothenburg, 6 11			
Christiania, 16 6			
Bergen, 5 9			
Rotterdam, 53 8			
Abo, 15 19			
Hango, 24 11			
Helsingfors, 6 1			
Wyburg, 59 18			
Ghent, 10 3			
Drontheim, 10			
Harlingen, 20 1			
New York, 200 7			
Bone Ash —			
Spezia, 5 t. 9 c.			
Caustic Soda —			
Genoa, 49 t. 12 c.			
Hamburg, 14 4			
Gothenburg, 55 2			
Christiania, 5 4			
Abo, 14 4			
Hango, 1 5			
Helsingfors, 52 18			
Wyburg, 66 19			
Copenhagen, 1 3			
Leghorn, 4 18			
Bilbao, 27 1			
Seville, 57 2			
Colours —			
Genoa, 1 t. 5 c.			
Copperas —			
Alexandria, 16 t. 8 c.			

Litharge—

Montreal, 1 t. 1 c.			
Christiania, 11			
Copenhagen, 1 5			
New York, 1			
Magnesia —			
Hamburg, 4 c.			
Leghorn, 6			
Bilbao, 7 t. 3			
Manure —			
Genoa, 10 t. 2 c.			
Oxalic Acid —			
Odense, 2 t.			
Genoa, 1 7 c.			
Paint —			
Antwerp, 2 t.			
Genoa, 19 c.			
Bergen, 19			
Gothenburg, 5			
Drontheim, 1			
Bilbao, 1 3			
New York, 14			
Paraffin Wax —			
Abo, 1 t. 11 c.			

Slag—

Rotterdam, 133 t.			
Soda —			
Gothenburg, 15 t. 4 c.			
Christiania, 15 2			
Rotterdam, 27 2			
Abo, 16 15			
Hango, 19			
Helsingfors, 25 1			
Wyburg, 4 9			
Aarhus, 3 4			
Bergen, 1 5			

Soda Ash—

Antwerp, 5 t. 6 c.			
Hamburg, 10 5			
Gothenburg, 37 8			
Helsingfors, 13 10			
Naples, 15			

Sodium Sulphate—

Abo, 3 t. 3 c.			
Seville, 1 1			

Sulphur—

Copenhagen, 225 t. 10 c.			
Helsingfors, 3			
Wyburg, 90			
Gothenburg, 61			

White Lead—

Genoa, 3 t. 9 c.			
Gothenburg, 1 17			
Christiania, 1			
Helsingfors, 17			
Copenhagen, 5 4			
New York, 17 10			

Zinc Ashes—

Antwerp, 2 t. 10 c.			
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GOOLE.

Week ending September 19th.

Chemicals (otherwise undescribed)			
Dunkirk, 4 cks.			
Ghent, 1			
Hamburg, 24 11 cs. 67 pkgs.			
Coal Products (otherwise undes.) —			
Boulogne, 12 cks.			
Ghent, 1 cs.			
Rotterdam, 56 30 dms.			
Manure —			
Boulogne, 226 bgs.			
Dunkirk, 261			
Hamburg, 300			
Rouen, 142			
Pitch —			
Antwerp, 150 t.			
Rotterdam, 76			

GRIMSBY.

Week ending September 22nd.

Chemicals (otherwise undes.) —			
Antwerp, 2 cks.			
Hamburg, 3 btl.			
Rotterdam, 7 pkgs. 20 dms.			
Coal Products (otherwise undes.) —			
Dieppe, 1 cs. 132 cks.			
Manure —			
Esbjerg, 1,000 bgs.			

PRICES CURRENT.

WEDNESDAY, OCT. 3rd, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	& 10/9
" Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1 1/4
Nitrous	"	0	0 1 1/4
Oxalic	nett	0	0 3 1/4
Phosphoric, 1750°	"	0	1 0
Picric	"	0	1 0
Sulphuric (fuming 50 %/.)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric	"	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	"	5	0 0
Alumina Sulphate (pure)	"	5	0 0
Aluminoferrie	"	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Arhydrous	"	0	1 4
" 880 = 28° B.	per lb.	0	0 3
" = 24° B.	"	0	0 2 1/4
" Carbonate	nett	0	0 3 1/4
" Muriate	per ton	23	10 0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	& 37/-
" Nitrate	per ton	42	0 0
" Phosphate	per lb.	0	0 10 1/4
" Sulphate (grey) London	per ton	12	17 6
" (grey) Hull	"	12	17 6
Aniline Oil (pure)	per lb.	0	0 5 1/4
Aniline Salt	"	0	0 5 1/4
Antimony	per ton	33	10 0
" (tartar emetic)	per lb.	0	0 9 1/4
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	10 0
" Carbonate (native)	"	3	10 0
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	10 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	10 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 2
Benzol, 90 % nominal	per gallon	0	1 2
" 50/90	"	0	1 2
Carbolic Acid (crystallised 40°)	per lb.	0	0 5 1/4
" (crude 60°)	per gallon	0	1 7
Creosote (ordinary)	"	0	0 2
" (filtered for Lucigen light)	"	0	0 2 1/2
Crude Naphtha 30 % @ 120° C.	"	0	0 5 1/4
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	1	14 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 4
Lucigen and " Wells Oils	"	0	0 2 1/2
Copper	per ton	41	1 3
" Sulphate	"	14	15 0
" Oxide (copper scales)	"	39	5 0
Glycerine (crude)	"	15	0 0
" (distilled S.G. 1250°)	"	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	5 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	0 0
" Litharge Flake (ex ship)	"	13	10 0
" Acetate (white ")	"	25	0 0
" " brown ")	"	1	10 0
" Carbonate (white lead) pure	"	1	0 0
" Nitrate	"	1	10 0

Lime, Acetate (brown)	per ton	7	5 0
" (grey)	"	10	15 0
Magnesium (ribbon and wire)	per oz.	0	2 3
" Chloride (ex ship)	per ton	2	10 0
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	"	17	15 0
" Borate	per cwt.	2	15 0
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.F.	per gallon	0	1 10
Naphtha (Wood), Solvent	"	0	3 6
" " Miscible, 60° O.F.	"	0	3 8

Oils:—			
Cotton-seed	per on	21	15 0
Linseed	"	22	0 0
Petroleum, American	per gallon	0	0 5 1/4
Stearine	per ton	25	10 0
Phosphorus (yellow)	per lb.	0	2 1
" (red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
" Bichromate	per lb.	0	0 4 1/2
" Carbonate, 90 % (ex ship)	per ton	16	15 0
" Chlorate	per lb.	0	0 6
" Cyanide, 98 %	"	0	2 3
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15 0
" " (Caustic Potash) 75/80 %	"	20	0 0
" " (Caustic Potash) 70/75 %	"	19	10 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	2 6
" Prussiate Yellow	per lb.	0	0 10 1/2
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	7 6
Silver (metal)	per oz.	0	2 4 1/2
" Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
" " (Caustic Soda-ash) 48 %	"	4	0 0
" " (Carb. Soda-ash) 48 %	"	4	0 0
" " (Alkali) 58 %	"	3	12 6
" " (Soda Crystals)	"	2	5 0
" Acetate (ex-ship)	"	14	15 0
" Arseniate, 45 %	"	11	0 0
" Chlorate	per lb.	0	0 7 1/4
" Borate (Borax)	net, per ton	20	0 0
" Bichromate	per lb.	0	0 3 1/4
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10	12 6	
" " (74 % Caustic Soda)	"	9	12 6
" " (70 % Caustic Soda)	"	8	12 6
" " (60 % Caustic Soda)	"	7	12 6
" " (60 % Caustic Soda, cream) (f.o.b.)	"	7	10 0
" Bicarbonate	"	5	12 6
" Hyposulphite	"	5	10 0
" Manganate, 30 %	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	9 0
" Nitrite, 98 %	per ton	29	10 0
" Phosphate	"	15	0 0
" Silicate (glass)	per ton	5	7 6
" " (liquid, 100° Tw.)	"	4	5 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	0	17 6
" " (Glauber's Salts)	"	1	5 0
" Sulphide	"	8	10 0
" Sulphite	"	5	7 6
Strontium Hydrate, 100 %	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7 1/4
" Barium, 95 %	"	0	0 5
" Potassium	"	0	0 7 1/2
Sulphur (Flowers)	per ton	7	5 0
" (Roll Brimstone)	"	5	5 0
" Brimstone: Best Quality	"	3	15 0
Superphosphate of Lime (26 %	"	2	7 6
Tallow	"	24	0 0
Tin Crystals	per lb.	0	0 6
English Ingo	"	73	10 0
Zinc (Spelter)	per ton	15	5 0
" Chloride (solution, 96° Tw.)	"	5	10 0

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LATE ADVERTISEMENT.

TENDER.

TO CHEMICAL MANUFACTURERS AND OTHERS.

THE Rivers Committee of the Manchester Corporation invite Tenders for the supply of about 250 tons of Proto-sulphate of Iron (Commercial Green Vitriol) to be delivered at the Davyhulme Sewage Works. Copy of specification and conditions may be obtained on application to Mr. T. De Courcy Meade, City Surveyor's Office, Town Hall. Tenders to be addressed to the Chairman of the Rivers Committee, endorsed "Tender for Proto-sulphate of Iron," and delivered at the above office not later than Friday, the 19th inst.

The Corporation do not undertake to accept the lowest or any Tender.

Town Hall, Manchester,
11th October, 1894.

WM. HENRY TALBOT,
Town Clerk.

Notices.

All communications for the *Chemical Trade Journal* should be addressed, and Cheques and Post Office Orders made payable to—

DAVIS BROS., 32, Blackfriars Street, MANCHESTER.

Our Registered Telegraphic Address is—

"Expert, Manchester."

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

30 Words and under 2s. 6d. per insertion
Each additional 10 words 6s. 6d.

Advertisements of Situations Wanted are inserted at one-half the above rates when prepaid, viz.:—

30 Words and under 1s. 6d. per insertion
Each additional 10 words 3s. 6d.

Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

COMPETITION IN THE CAUSTIC SODA TRADE.

COMPETITION is rife in most industries, and the chemical trade forms no exception. Occasionally, however, the tactics employed lead to very strange and anomalous events. A rumour, which has been the talk of the trade this week, affords an instance of some of the complications competition occasionally brings about.

Lately the United Alkali Co., Ltd., have, for strategical purposes, been selling caustic soda in the United States at an absurdly low price—in fact, have as good as given it away. The wily Yank, however, evidently takes a great deal of cornering.

Some enterprising individuals being aware of the difference between prices in the States and this country, have ventured on a speculation, and decided to send caustic soda from America over here, evidently calculating on a profit through the transaction; and it is stated that a cargo of caustic soda is already actually on its way from America to this country.

It was not to be expected that this sort of thing could go on, and we learn that the rival parties have come to an agreement. So the caustic soda war which has been waging in the States has been temporarily laid. Though of comparatively short duration, the *dénouement* has been striking and somewhat exciting.

THE U.S.A. DUTY ON SULPHATE OF AMMONIA.

A short time since we referred to a certain amount of uncertainty which attached to the duty on sulphate of ammonia imported into the States as a manure.

Owing to a clause in the Free List it appeared possible that the words "guanoses and all substances expressly used for manure" might be construed to include sulphate of ammonia. In the majority of cases any general provision concerning certain articles in the Free List is followed by a saving clause, to the effect that the general provision only applies to such articles not specially provided for in the Act. The paragraph concerning guanoses, &c., however, was followed by no such proviso. Seeing that the Tariff Bill had been found to abound with errors of punctuation, and the like, it was suggested to us that the apparent discrepancy between the stated duty of 20 per cent. in Clause 8½ of Schedule A and the Free list provisions for manures of all kinds, might possibly afford a loop-hole by which sulphate of ammonia could escape duty.

Any such hope, however, must not be entertained, for a closer study of the latest, correct, and official copy of the Tariff Act, and the rules for its administration, places the matter beyond all doubt.

Specific provision by name of any article overrules all general provisions. This is a regulation which should be carefully borne in mind when studying the intricacies of the new Act.

FRUIT IN DUE SEASON.

Test cases affecting the rights of chemical manufacturers have been tried on many occasions, but it is not often that the good done to the industries interested is evidenced by direct results.

A striking instance of the salutary effect such cases have upon those who hold hypercritical notions about the restrictions which should be imposed on an industry that is attended with the production of any smell or smoke, has presented itself during the last few days.

Most of our readers will remember that in the end of March, 1892, a case which excited a great deal of interest was heard by Lord Chief Justice Coleridge in the Nisi Prius Court at the Manchester Assizes—we refer to the case of "The Queen v. Levinstein and Co., Limited."

The counsel for the Crown was instructed by the Manchester Corporation. The plaint was that the chemical works of the defendant emitted a smell which amounted to a nuisance. In the end the verdict was for the defendants.

Apparently complaints have lately again been made from the Crumpsall Workhouse, about the smell from the chemical works in the neighbourhood. The matter was brought before the Sanitary Committee of the Manchester Corporation, and disposed of by the following reply:—"Having regard to the result of the legal proceedings instituted by the Corporation in the year 1892, when this matter was tried at Manchester Assizes, the Sanitary Committee cannot, under present circumstances, be advised to initiate any proceedings." It is encouraging to chemical manufacturers in the present depressed state of their trade to know that the result of this important test case is still fresh in the minds of those who have the power to institute proceedings for the creation of nuisances, real or imaginary.

THE TIN-PLATE TRADE.

The prospect of the revival of the tin-plate industry in Wales is decidedly favourable. The situation, although much improved under the new tariff has been strengthened considerably by the wages dispute which has arisen in America. The men are seemingly determined to withstand the proposed reduction of 15 per cent., while the masters declare that rather than go on working at the present wages they will close the whole of the tin-plate works, numbering some sixty or so.

The Welsh manufacturers are moreover making a bold move to improve their trade. They offer not only to guarantee work to all the tin-platers who went some time since to America, if they will return, but are further willing to pay the fare of all those who will come back immediately. This move is likely to produce the desired result, seeing that those who migrated to the States to obtain better wages, are threatened now with the prospect of no wages at all, or at the best, a reduction of fifteen per cent. Under these circumstances, the Welsh manufacturers' offer will appear tempting to a degree.

CLOSING OF THE DARLINGTON STEEL WORKS.—The Albert Hill Works of the Darlington Steel and Iron Company, which gave employment to about 800 men, have been closed in consequence of the slackness of work. These works, which, with the exception of the North-Eastern Railway Company's locomotive works, employed more than any other concern in Darlington, have been in existence thirty-five years.

GLAZING BRICKS.—A patented enamel for bricks, which is prepared so as to have the same co-efficient of expansion as the brick or tile to be glazed, is composed of red lead, silica and China clay, to which mixture small quantities of carbonates of soda and potash, oxides of tin and arsenic, nitre, and salt are added. The whole is fused and run out on cold iron slabs into cakes. These are ground to powder, mixed with water and gelatine, spread upon the surface to be enamelled, and fired.

IMPORTS AND EXPORTS FOR SEPTEMBER.

THE Board of Trade returns for the past month are, taken as a whole, unsatisfactory, although the export returns show signs of a revival of trade with the United States. There is a decided decrease in the imports of oils and chemicals. The imports of manures, however, are on the increase, and the exports of chemicals.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1893.	1894.
Margarine	Cwt. 117,134	82,462
Copper Ore and Regulus	Tons. 17,102	21,788
Hides, dry and wet	Cwt. 87,301	78,171
Nitrate of Soda	Tons. 4,051	7,665
Tallow and Stearine	Cwt. 149,968	163,830
Tin	" 48,134	76,687

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 350,743	499,663
Cement	Tons. 32,983	42,668
Coal and Coke	" 2,278,061	2,609,983
Copper, all kinds	Cwt. 98,240	87,995
Iron and Steel	Tons. 233,024	238,978
Chemical Manures	" 36,765	30,452
Oils, seed	" 4,826	3,756
Salt	" 48,584	51,894

GOLD PRODUCTION IN SEPTEMBER.

THE following are the returns of some of the chief gold mining companies for the past month:—

The Paarl Central Gold Mining and Exploration Company, Limited, report the following results: 4,003 tons, 1,611 ounces. Cyanide works: Treated, 2,695 tons, 556 ounces; total, 2,167 ounces; total value, £7,148.

The Crown Reef Gold Mining Company, Limited, report:—Yield in smelted gold from 120 stamp mill, 6,522 ounces; yield from tailings and concentrates, 2,743 ounces; yield from old cyanide works treating, accumulated stock of tailings and slimes, 1,462 ounces; total, 10,727 ounces.

The report of the Geldenhuis Main Reef Gold Mining Company, Limited, states:—Mill, 2,800 tons crushed. 1,160 ounces; cyanides, 2,100 tons, 540 ounces; total yield, 1,700 ounces.

The New Clewer Estate and Gold Mining Company, Limited, have crushed 2,000 tons, yielding 1,018 ounces. From cyanide works, treated 1,785 tons, yielding 826 ounces. Total yield, 1,844 ounces. Total value, £5,356.

The Lisbon-Berlyn Company, Limited, report:—Tailings treated by cyanide, 1,100 tons; recovered, 510 ounces; milled, 1,200 tons; recovered, 116 ounces; total recovered, 626 ounces.

MESSRS. GALLOWAYS, LTD.—Messrs. Galloways, Limited, of Manchester, have been awarded the *Grand Prix* for boilers which they exhibited at the Antwerp Exhibition.

THE SINGULAR ACCIDENT AT MULHOUSE.—Through the courtesy of a correspondent we have been afforded more precise information concerning the accident which we recorded last week as happening subsequent to an explosion of nitrobenzol. (*C. T. J.* 385, p. 212.) We did not like a worthy contemporary cite the case as an instance of the gruesome properties of nitrobenzol, since it was apparent that the liquid in which the man was destroyed could not have been nitrobenzol but was most probably a mixture, largely composed of the acids used for nitric acid. The precise circumstances however were as follows:—An explosion occurred in the nitrobenzol department resulting in a fire, which was extinguished in two hours. The operative who was present when the explosion occurred was blown up into the air, and fell down into a large trough which was filled about three feet deep with sulphuric acid, the temperature of which was found to be 91°C. ten hours after the accident. The death of the man in this trough was proved by his caoutchouc respirator, muzzle, two porcelain buttons, and other difficultly soluble articles being found. Unless his death had thus been established beyond doubt, his relatives would not have been able to obtain a pension from the State.

TABLE FOR THE COMPARISON OF HYDROMETERS.

Owing to the issue of the *Journal* in which this Table was first printed several years since, having long been out of print, we have been unable to meet the many enquiries we have had for copies of the Table. It has therefore been re-printed in a rather more convenient form.

Degrees.	SPECIFIC GRAVITIES.			Degrees.	SPECIFIC GRAVITIES.			Degrees.	SPECIFIC GRAVITIES.
	Twaddell.	Beaumé.	Light Beaumé.		Twaddell.	Beaumé.	Light Beaumé.		
1	1'005	1'0069		58	1'290	1'6744	0'7500	115	1'575
2	1'010	1'0140		59	1'295	1'6941	0'7461	116	1'580
3	1'015	1'0212		60	1'300	1'7142	0'7422	117	1'585
4	1'020	1'0285		61	1'305	1'7349	0'7384	118	1'590
5	1'025	1'0359		62	1'310	1'7562	0'7346	119	1'595
6	1'030	1'0435		63	1'315	1'7777	0'7309	120	1'600
7	1'035	1'0510		64	1'320	1'8000	0'7272	121	1'605
8	1'040	1'0588		65	1'325	1'8227	0'7236	122	1'610
9	1'045	1'0666		66	1'330	1'8461	0'7200	123	1'615
10	1'050	1'0746	1'0000	67	1'335	1'8701	0'7164	124	1'620
11	1'055	1'0827	0'9931	68	1'340	1'8947	0'7128	125	1'625
12	1'060	1'0909	0'9863	69	1'345	1'9200	0'7093	126	1'630
13	1'065	1'0990	0'9795	70	1'350	1'9459	0'7058	127	1'635
14	1'070	1'1076	0'9730	71	1'355	1'9726	0'7024	128	1'640
15	1'075	1'1162	0'9664	72	1'360	2'0000	0'6990	129	1'645
16	1'080	1'1250	0'9600	73	1'365	.....	0'6951	130	1'650
17	1'085	1'1338	0'9536	74	1'370	.....	0'6923	131	1'655
18	1'090	1'1428	0'9473	75	1'375	.....	0'6889	132	1'660
19	1'095	1'1520	0'9411	76	1'380	.....	0'6857	133	1'665
20	1'100	1'1612	0'9350	77	1'385	.....	0'6824	134	1'670
21	1'105	1'1707	0'9290	78	1'390	.....	0'6792	135	1'675
22	1'110	1'1803	0'9230	79	1'395	.....	0'6760	136	1'680
23	1'115	1'1900	0'9171	80	1'400	.....	0'6728	137	1'685
24	1'120	1'2000	0'9113	81	1'405	.....	0'6697	138	1'690
25	1'125	1'2100	0'9056	82	1'410	.....	0'6666	139	1'695
26	1'130	1'2203	0'9000	83	1'415	.....	0'6635	140	1'700
27	1'135	1'2307	0'8944	84	1'420	.....	0'6605	141	1'705
28	1'140	1'2413	0'8888	85	1'425	.....	0'6575	142	1'710
29	1'145	1'2521	0'8834	86	1'430	.....	0'6545	143	1'715
30	1'150	1'2631	0'8780	87	1'435	.....	0'6515	144	1'720
31	1'155	1'2743	0'8727	88	1'440	.....	0'6486	145	1'725
32	1'160	1'2857	0'8674	89	1'445	.....	0'6457	146	1'730
33	1'165	1'2972	0'8622	90	1'450	.....	0'6428	147	1'735
34	1'170	1'3090	0'8571	91	1'455	.....	0'6400	148	1'740
35	1'175	1'3211	0'8520	92	1'460	.....	0'6371	149	1'745
36	1'180	1'3333	0'8470	93	1'465	.....	0'6343	150	1'750
37	1'185	1'3457	0'8421	94	1'470	.....	0'6315	151	1'755
38	1'190	1'3584	0'8372	95	1'475	.....	0'6288	152	1'760
39	1'195	1'3714	0'8323	96	1'480	.....	0'6260	153	1'765
40	1'200	1'3846	0'8275	97	1'485	.....	0'6233	154	1'770
41	1'205	1'3980	0'8228	98	1'490	.....	0'6206	155	1'775
42	1'210	1'4117	0'8181	99	1'495	.....	0'6180	156	1'780
43	1'215	1'4257	0'8135	100	1'500	.....	0'6153	157	1'785
44	1'220	1'4400	0'8089	101	1'505	.....	0'6127	158	1'790
45	1'225	1'4545	0'8044	102	1'510	.....	0'6101	159	1'795
46	1'230	1'4693	0'8000	103	1'515	.....	0'6075	160	1'800
47	1'235	1'4845	0'7955	104	1'520	.....	0'6050	161	1'805
48	1'240	1'4999	0'7912	105	1'525	.....	0'6025	162	1'810
49	1'245	1'5157	0'7863	106	1'530	.....	0'6000	163	1'815
50	1'250	1'5319	0'7826	107	1'535	.....		164	1'820
51	1'255	1'5483	0'7783	108	1'540	.....		165	1'825
52	1'260	1'5652	0'7736	109	1'545	.....		166	1'830
53	1'265	1'5824	0'7700	110	1'550	.....		167	1'835
54	1'270	1'6000	0'7659	111	1'555	.....		168	1'840
55	1'275	1'6179	0'7619	112	1'560	.....		169	1'845
56	1'280	1'6363	0'7578	113	1'565	.....		170	1'850
57	1'285	1'6551	0'7539	114	1'570	.....			

THE BRITISH AND COLONIAL INDUSTRIAL EXHIBITION.

ONE of the most successful exhibitions that has been held in Manchester, since the great exhibition in Jubilee year, came to an end on Wednesday last. The exhibits were well arranged, and the St. James's Hall, in which the exhibition was held, was tastefully lighted with electric light, under the supervision of Messrs. Royce and Co., Ltd., Hulme, Manchester.

From a business point of view, also, the exhibition appears to have been a success, as our representative heard of satisfactory business

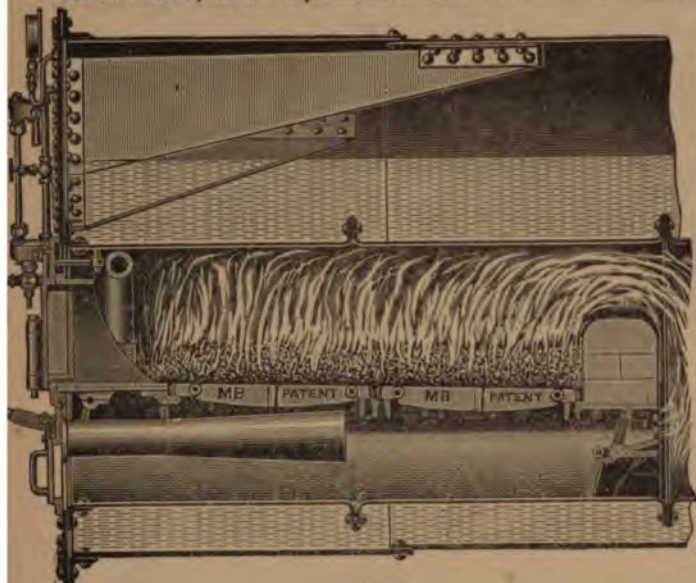


FIG. 1.

having been done by a good many exhibitors. Up to Saturday, 55,000 persons had paid for admission, apart from the number who were admitted by private tickets from exhibitors.

Among the exhibits of interest to the chemical industries, the following were the most prominent:—

MESSRS. MELDRUM BROS.,

of the Atlantic Works, City-road, Manchester, and London.

At their stand, this firm exhibited the following models, or apparatus, for blowing and exhausting, etc.:—Model of Cornish boiler, fitted with

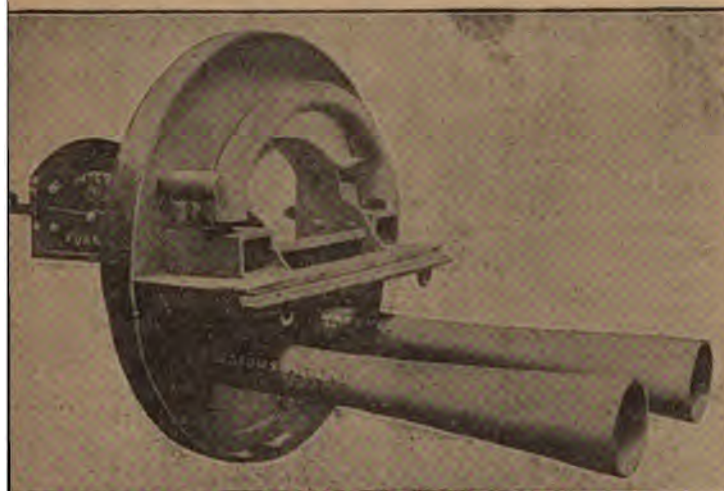


FIG. 2.

the "Meldrum" patent furnace (blowers working with compressed air), for burning all kinds of fuel to the best advantage, and for improving defective draught; no tall chimney required; the evaporative power even of the best coal increased; clinkers are prevented from adhering to the bars; firebars are preserved and last for years; no waste of fuel through the bars; no liability to get out of order. Patent blowers for boiler furnaces. Sizes 1 to 10. Patent blowers for gas

producers, etc. Sizes 1 to 9. Special blowers working with compressed air to supply gas exhauster. Patent air compressors for oxidising, etc., to 10 feet head and upwards. Sizes 1 to 12. Air compressor, No. 4 size, with surface condenser supplying dry air at 10lb. pressure, for working gas exhauster, blowers of model boiler, etc. Patent agitators for mixing and agitating liquids; work to 12 feet head and upwards. Sizes 1 to 12. Agitator, No. 1 size, was shown working with compressed air, and rousing water in tank 3 feet deep. Patent ejectors for vacuum, up to 26in. mercury, in 12 sizes. Ejector, No. 1 size, in operation with steam exhausting tank. Steam jet elevators for raising and moving liquids. Special lead elevators for acids. Circulating elevator, No. 3, drawing cooling water through surface condenser. Patent steam jet gas exhauster, with automatic governor, working with compressed air, and maintaining a constant vacuum at inlet, notwithstanding variations in the supply.

In Fig. 1 we show a longitudinal section of the Meldrum forced-draught system as fitted to a Cornish boiler. The ash-pits are closed by a cast-iron plate, fitting air-tight, and provided with an air-tight door for removing the fine ash; with the bars supplied this does not require attention more than once daily. Two patent steam jet blowers are provided for each furnace, lying within the ashpit and fixed to the ashpit front.

Steam is supplied to the two blowers from one steam pipe, the air blast being regulated at will by a steam cock or valve.

The blowers are the simplest and most perfect form of jet apparatus made. They use no more steam than is necessary to preserve the bars, and less than that evaporated from the water bath adopted in some systems for keeping the bars cool.

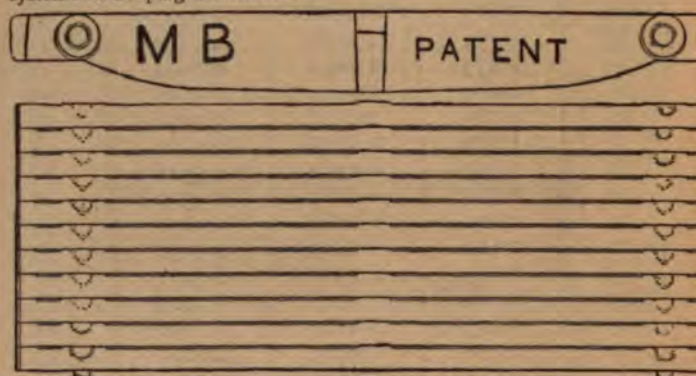


FIG. 3.

The blowers are constructed to give any required pressure of blast to 6 in. water column and upwards for special circumstances, but, as a rule, no more than 1 in. to 1½ in. is required.

Fig. 2 shows a perspective view of the complete apparatus, as seen from the inside of the furnace. As depicted, the arrangement for superheating the air prior to being forced into the ashpit and through the furnace bars is clearly shown, indicating how simply this operation can be achieved when necessary.

The Patent Fire Bars as shown in Fig. 3 are provided with a special locking arrangement to prevent any bars being accidentally lifted when cleaning; this avoids burning, and in consequence the bars, with judicious use, will last for many years.

The bars are spaced under one-eighth of an inch apart, so that nothing of value can fall through. The saving of fuel from this source alone more than covers the cost of steam for working the blowers.

Over 2,000 installations of this furnace have been put in at different places to burn all kinds of waste fuel, including coal dust, coke dust, anthracite dust, smudge, dant, dross, breeze, cannel-coke, pan breeze, ashpit refuse, ashes from puddling and heating furnaces, from gas producers and retort furnaces, &c. Several furnaces have also been fitted to burn waste bark tan, and in some cases the same rubbish is being successfully burnt even after chemical treatment in connection with white lead manufacture.

Large diagrammatic drawings of a new destructor boiler, designed by this firm, for burning all kinds of towns' refuse, were also exhibited. These boilers are giving every satisfaction at Basingstoke, Rochdale, and elsewhere.

MESSRS. LANCASTER AND TONGE,

engineers, of Pendleton, Manchester, had an exhibit of their specialities. Amongst the most familiar of these are their piston rings, known as the "Lancaster" spiral coil spring. There is practically no limit to the scope for these rings, which were shown in sizes ranging from 20 inches up to 112 inches in diameter. Their lifetime is long, as is witnessed by two rings which were exhibited. These rings had been working in a colliery locomotive for eight years, and yet showed no

appreciable signs of wear and tear. In fact, it required a close inspection to detect them from the other new rings which were exhibited alongside. These rings consist of a straight spiral spring inside two casings. The latter are made of a special mixing of iron alloyed with aluminium, thus making them close-grained and capable of taking a high polish.

The spring is coiled from the best cast steel, and by test diagrams the firm is able to exactly gauge the strength of spring required, and thus supply a perfectly steam-tight piston without any friction beyond what is absolutely necessary for perfect steam-tightness.

The testing is done in the following manner:—

The rings are placed in a model piston and allowed to expand. A specially designed dynamometer is then applied, and the force exerted against the walls of the cylinder measured, readings being taken every $\frac{1}{8}$ in. or every $\frac{1}{16}$ in. that the joints of the rings close, according to their size.

Thus a uniform scale of pressures for all sizes of pistons can be adopted, giving the minimum of friction required to keep them steam-tight.

Mention might here be made of the fact that Messrs. Lancaster and Tonge make a specialité of boring out cylinders, air pumps, &c., in position, employing a special staff and tackle for this class of work.

The serpent coil, as made by this firm, excited general interest among engineers who gave special attention to this exhibit, on account of its adaptability for piston valves. Working over the steam ports there is a tendency for the steam pressure acting on the outer side of the periphery of the usual rings to compress the rings, causing leakage and loss. The "Lancaster" serpent coil, however, is guaranteed to offer

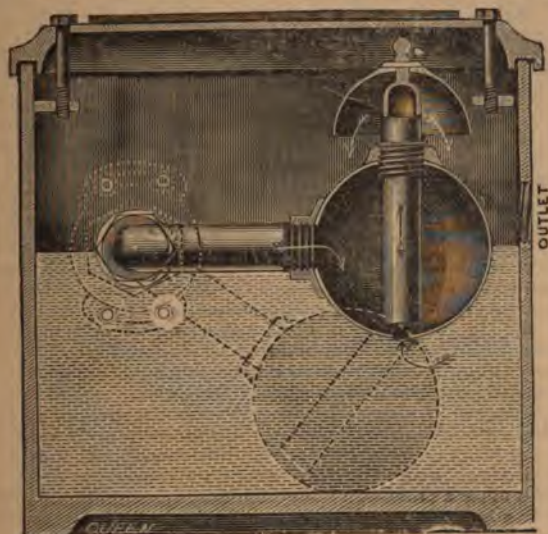


FIG. 4.

a resistance to collapse of over 200 lbs. per square inch, and at the same time have an outward pressure to compensate for wear of less than 3 lbs. on the square inch. A number of testimonials touching the economy of these coils were shown.

Steam traps are also made a prominent feature by this firm, there being several weighty advantages in the construction and working of their traps.

One of these is shewn in sectional elevation in Fig. 4. It is constructed of a copper ball, having a small hole at the bottom and a down-pipe (with a small bell on the top for deflecting the discharged water, so that the cover can be taken off and the trap examined whilst working), connected by an elbow pipe to a hollow quick-threaded screwed spindle, at the end of which is placed a loose valve, alternately forced to its seat and released by the rising and falling of the ball rotating the quick-threaded screwed spindle.

In order to describe the action of the trap we will suppose the ball to have fallen to the bottom of the trap, as shown in dotted lines. The loose valve is then away from the seating, and all the condensed water present flows through the hollow spindle and elbow-pipe into the ball, then up the down-pipe and through the outlet, as indicated by the arrows. As long as the condensed water is present the ball remains down, but the entrance of steam empties the ball by forcing the water up the down-pipe—the ball then becoming buoyant, and, rising, rotates the quick-threaded screwed spindle, and closes the valve.

The ball is then full of steam, which, slowly condensing allows the water in the trap to flow into the ball through the small hole at the bottom, thus destroying its buoyancy, and causing it to fall. When the ball falls, if live steam be present it will at once rise and close the

valve, and allow no steam to escape; should there be condensed water present it will fall and the trap will remain open till all the condensed water has escaped, but on the entrance of steam it will at once close, and thus the cycle of operations is continued. Its action is similar to a man standing by a wheel valve, and keeping it open as long as condensed water is flowing out, closing it as soon as ever steam appears, slightly opening it again to see if there is any more condensed water, and, if so, keeping it open and allowing all the condensed water to escape, and closing it as soon as ever steam commences to appear, and so on alternately.

The rest of the exhibit comprised brass valves, taps, gauges, lubricators, malleable-iron unions, and other similar engineering accessories.

JEVES'S SANITARY COMPOUNDS CO., LIMITED.

of London, Manchester, &c., had a tastefully arranged exhibit of double milled toilet and medicated soaps, and similar toilet accessories. Their other various preparations for disinfecting were also represented, such as their Perfect Purifier, Dog Soap, Sheep Dip, Sanitary Powder, and similar compounds. The soap section was attended to by a young lady attendant, dressed in fancy costume, as a hospital nurse, wearing the red cross so familiar to the public on account of its being the prominent feature of the trade mark of this company.

MESSRS. J. KERSHAW AND COMPANY.

of Hollinwood, near Manchester, showed various methods of applying their improved non-conducting composition for coating steam boilers, pipes, cylinders, and all steam-heated surfaces, which, for saving of fuel, durability, and comforts in the surroundings, enjoys an excellent reputation.

It is not injured by steam heat of any temperature. A case of leakage is immediately indicated by the composition becoming wet and pulpy; it can then be removed and reapplied when the repairs are completed.

Samples of the other productions of this firm were also shown, viz., locomotive, wheel and water-wheel greases, engine and cylinder oils, soft soaps, detergent compound, brown, red, and black branding compositions, and varnishes.

THE YORKSHIRE VARNISH CO., LIMITED,

of Ripon, London, and Glasgow, had an exhibit composed of a handsome show-case filled with the productions of this company. Their leading line is quick-drying colours ground in turpentine, including ivory drop black, Prussian and Chinese blues, ultramarines, chrome yellows, super Brunswick, royal bronze, Quakers' and other greens, Indian reds, flake white, &c. They are all ground very fine in pure spirits of turpentine in combination with an entirely new drying ingredient, perfectly innocuous in itself, but accelerating the drying properties in such a way as to greatly expedite the dispatch of work without the slightest interference with its subsequent durability. For work required to be got quickly out of hand, they are invaluable in saving of time and labour. Where it is desired to give more time between the coats, the drying properties can easily be slackened in the usual way.

The drop black just referred to calls for special mention, on account of its being perfectly fast. It is sent out to consumers ready bound for use, without the addition of gold size or any other drying ingredient, and has obtained a high reputation amongst practical men. It is one of the most important additions to the requirements of the trade that has ever been brought out.

THE INCANDESCENT GAS LIGHT CO., LIMITED,

of London, Manchester, &c., attracted a good deal of attention on account of the brilliancy of their exhibit, which consisted of an artistically-arranged collection of the hundred and one forms of incandescent gas lamps which they make. This light seems to be growing in favour with the public, to judge by the increased frequency with which it is to be met with in shops and dwellings, where a clear, steady, and cheap light is wanted. It is also to be used for street lighting in Bradford, Yorks. Among other things this firm showed a neat lamp for displaying advertisements, &c., which also appears capable of being put to many other useful or ingenious purposes.

MESSRS. COPLEY, TURNER, AND CO., LIMITED,

of the Vulcan Works, Middlesbrough, showed various forms of the Harris Patent Feed Water Filter. This filter has been fitted to several Cunard Liners. Its chief advantages are: Being capable of working for a long time without changing the filtering medium, the small strain on the pumps, an automatic alarm when foul, and cleaning without opening. Oily matters are completely separated. A specially-designed filter has been fitted to the *Campania*, which enables the voyage to New York, entailing the filtration of 30,000 tons of water, to be made without opening the filter to change the filtering medium.

Agricultural Notes.

TESTING THOMAS SLAG.

According to the researches of Mons. M. E. Wramplemeyer, in the majority of cases the purity of Thomas Slag can be determined by means of the specific gravity and a microscopical examination. The microscopical examination ought never to be dispensed with, as it leads to the detection of suspicious ingredients, thus throwing a light on what is observed during incineration.

Among the samples which M. Wramplemeyer has examined, he has never found the loss on ignition exceed 4.3 % or the specific gravity be below 1.6730. Generally it was over 2.0. It is also desirable to estimate the solubility in water. This is done by boiling 2 grams with water, washing, after filtering, till free from alkali and the filtrate leaves no residue on evaporation to dryness. The residue is then ignited and weighed, note being taken of the loss on ignition. By means of these experiments figures characteristic of these slags will be obtained. If the loss on ignition be small and the density and solubility in water high, the slag may be considered pure. If any doubt then exists, the phosphoric acid soluble in citrate of ammonia must be determined.

INFLUENCE OF POTASH SALTS ON NITRIFICATION.

A good deal of work has been done in this direction by M. M. Dumont and Crochetelle, who have come to the conclusion that in certain soils potash salts of certain kinds materially assist the process of nitrification. They find that carbonate of potash acts better than sulphate. This conclusion was arrived at through the discovery of the fact that while the carbonate acted in silicious soils, the sulphate failed, yet in a calcareous soil the sulphate acted and could be applied in larger quantities than the carbonate. This is accounted for apparently owing to the sulphate being converted in the calcareous soil into carbonate.

The requisite quantity of potassium carbonate varies with the soil. With poor soils but a very small quantity of carbonate can be added. With soils rich in nitrogen, humus and calcium compounds, larger quantities can be used to advantage.

ADULTERATIONS OF FEEDING STUFFS.

In the report of the Gemblou Association of Old Students, mention is made of a number of cases of adulteration, which have been reported to the association by members.

Linseed cake was found adulterated with the waste obtained during the cleaning of the linseed, and potatoes. Another cake contained a mixture of wheat, sesame, and the cleaning waste mentioned above. An arachide meal was composed of a mixture of arachide, sesame, sunflower, castor and other seeds not determined.

A sample of bran was found adulterated with seeds of *Lychnis githago*, and was much mildewed.

Linseed meal was found in several cases to contain a good deal of mustard-seed.

In Liège, an alimentary substance sold as a preparation of wheat proved to be principally composed of the husks of cereals, and foreign grains.

Nitrate of soda was found adulterated with salt in a good many cases, amounting in one case to as much as 85%. Out of 89 samples in the Gand district, 25 were adulterated with sand and kainit, in addition to varying percentages of salt.

IRON SULPHATE IN THE CULTIVATION OF BEETROOTS.

The cultivation of beetroots is a complex task owing to the numerous circumstances which influence the development of the plants, such as the temperature of the soil, spacing of the plants, and combination of manures employed. Most attempts, therefore, to bring on beetroots rapidly have been attended with little success.

It has been proved, however, by the crops produced that in Austria very beneficial results have been obtained by the use of ferrous sulphate in the proportion of 200 to 250 kilogrammes per hectare. Its use has also produced good results at Quessy (Aisne).

The utility of ferrous sulphate as a fertiliser for fruit trees is well known, but its employment in the forcing of beetroots is not so generally known. It should be borne in mind that judgment must be exercised in using ferrous sulphate, so as to proportion it to the nature of the soil. Speaking generally, for calcareous soils, 600 kilog. per hectare is advisable; for silicious soils, 100 kilog. suffices.

THE PRESERVATION OF FARMYARD MANURE.

Apart from the special advantages of patent manures, farmyard manure has undoubted great value as a fertiliser when properly stored. Unfortunately in most cases the means adopted for collecting and preserving such manure are so faulty that nothing but very poor results could possibly be expected. Nothing is done in many cases to fix the ammonia or to prevent its loss through heating, while phosphoric acid

and potash are allowed to be washed away every time it rains. Again, but little of the liquid manure is collected, though far richer than solid manure in fertilising agents. If this were collected and mixed with four times its volume of water, so as to prevent fermentation during storing, there would be less need to purchase such large quantities of artificial phosphates.

It has been estimated by an eminent French chemist that the value of the manure produced in France in the farmyard is 66 millions sterling, but that at least one-sixth, or the equivalent of 11 millions sterling, is lost altogether owing to carelessness in management. There is little cause to think that greater care is exercised by English farmers. In many cases there is every assurance that the manurial value of farmyard manure is decreased 50 per cent. through thoughtlessness, defective accommodation, and sometimes ignorance.

THE HISTORY OF THE ELECTRO-CHEMICAL PROCESS.

THE following paragraph appeared last week in the "Local Notes" of the *Newcastle Daily Chronicle*:-

Among the recent developments of electricity referred to by Mr. Swinburne in the course of a recent lecture at Newcastle, was the electric method of making caustic soda and bleaching powder, by the direct decomposition of common salt. A method for this purpose was the subject of a patent by two Newcastle gentlemen about ten years ago. The idea originated with Mr. W. S. Richardson, who at that time was engaged in the study of electricity at the Elswick Mechanics' Institute, where Mr. W. J. Grey was lecturer on physical science. A lecture experiment demonstrating the decomposition of common salt by a current of electricity was in progress one evening, and Mr. Richardson suggested that instead of voltaic cells dynamos might be used, and the method applied to the commercial production of alkali and chlorine. Mr. Grey was at first of opinion that such a large amount of horsepower would be needed as to render the proposed method more costly than the one in use. At the request of his sharp student, he went into the subject from a mathematical point of view, and was surprised to find that the method—if it were practicable at all—would, after making every allowance, be highly economical. The suggested method was patented in March, 1884, and then the real difficulties began. One local manufacturer, who said the process, if practicable, would realise the "dream of the alkali maker," offered to take the matter up and do all in his power—which was very considerable—to make it successful, provided that the two patentees would assign all their rights to him, but this offer did not commend itself either to Mr. Richardson or his partner. The only local gentlemen who did anything with the new process were the late Alderman Cail and his partner, Mr. Davies, and the late Mr. G. Roberts, son of Captain H. Roberts. The experiments presented considerable difficulties, as it was desirable for them to be on a large scale, and such experiments were never made locally. Moreover, high tension dynamos were used, giving small currents, and employing such machines to try a process involving electrolysis was almost like yoking Ladas to a brewer's dray in order to test the merits of the horse as an animal for draught. Towards the end of 1885, the local experiments ceased entirely, and none of them were of any practical value, merely demonstrating what was well known, that common salt could be decomposed by a current of electricity. Other attempts made in the south of England have resulted in success, although many and serious difficulties presented themselves, one of the most important being the corrosion of the carbon electrodes by the nascent chlorine. The electrolytic process, dispensing as it does with nearly all the complicated and expensive plant of a Leblanc works, will doubtless be the process of the future, and may affect the working of the highly successful ammonia process. The correctness of the calculations made on the subject by Mr. Grey ten years ago is amply shown by the results recently attained.

It is not surprising that the above paragraph provoked the appended criticism from "E. M. F.," who complains that the paragraph in question gives currency "to the common error of supposing that the production of chlorine and soda compounds by the electrolysis of a solution of sodium chloride is a comparatively new invention, and it is stated that the original idea was entirely due to Mr. W. S. Richardson, of Newcastle, who, in conjunction with Mr. W. J. Grey of the same town, patented the process in March, 1884."

As a matter of fact the idea originated more than a quarter of a century before the date of Messrs. Richardson and Grey's patent, as may be seen by any one who cares to take the trouble of calling at the Free Library and asking to see the specification of patent No. 13,755 taken out in the year 1851 by Charles Watt, of Kennington, in the county of Surrey. Said patent is entitled "Improvements in the decomposition of saline and other substances, &c.," and in the specification the treatment of chloride of sodium in solution by means of a current of electricity for the production of chlorine and caustic soda is described with considerable fulness, including the use of evolved

hydrogen as a source of heat. The employment of a dynamo for this and similar purposes was patented by Loutin in 1875 (No. 473).

Now, all really new chemical or electro-chemical inventions may be divided roughly into two categories, viz. :—(1) New processes, and (2) improvements on existing or previously proposed processes. Messrs. Richardson and Grey's invention certainly does not come under the former class, and a careful study of their patent specification fails to discover a reason for including it in the second category.

Subsequent to 1851 similar processes with many modifications have been the subject of upwards of 240 British patents or applications for patents. Thus, it will be seen that the production of chlorine, &c., by electricity is not a comparatively new proposal, dating only from the year 1884, but is really much older, and formed the subject of 13 British patents before that of Messrs. Richardson and Grey, the earliest one anticipating them by 33 years.

As to the alleged "success" of the electrolytic method of producing chlorine for the manufacture of bleaching powder, it may be well to note that notwithstanding the above formidable list of patents, and all that has recently been written and said on the subject, it appears that not a ton of electrolytic bleaching powder has yet been made on a commercial scale in the whole country. It may be that we are on the eve of successful developments, and that one of the numerous patentees who are racking their brains on the subject may already have turned up or may shortly turn up the winning trump card, but thus far the Leblanc process still "holds the field." The fact is that the electrolytic process presents many problems of extreme difficulty; and, so far, it has not been established that any of these difficulties have been overcome in a commercially practical manner, although very great credit is due to the various inventors for the wonderful ingenuity, skill, and patience with which during the last half-dozen years they have attacked these problems. He would be a bold man who would predict that the problems are insolvable, and yet hardly more bold than he who would take upon himself to prophesy that, say, 5,000 tons of electrolytic bleaching powder would be made in the whole country during the next five years.

In conclusion, will you permit me to suggest, in reference to a remark made by Mr. Swinburne in his lecture on the policy of those manufacturers who follow established methods, that the *raison d'être* of public companies is not the development of new inventions, but the earning of dividends, and that it is only when the former conduces to the latter, or in the opinion of those most competent to judge, is likely to do so, that such companies are justified in spending money on costly experiments on a large scale."

THE NEW UNITED STATES TARIFF.

(Concluded from p. 176).

THE following is the completion of the abstract of the New Customs Tariff of the United States given in No. 383 of the *Journal*. The Free List is taken from the latest revised edition of the New Tariff Act. We shall be pleased to afford enquirers at the office of the *Journal* such information as lies in our power concerning this new tariff, particularly about articles in the Free List :—

Articles.	Rates of Duty.
	Dols. cts.
Burnt Pyrites	Per ton 0 40
Aluminium, crude and alloyed	Per lb. 0 10
Nickel, alloys and oxide	" 0 6
Mica	20 % ad val.
Quicksilver	Per lb. 0 7
Starch	" 0 1½
Dextrine or British gum	" 0 1½
Shoddy	15 % ad val.
Carbonized noils	15 % ad val.
Mechanical woodpulp, bleached, unbleached	10 % ad val.
Chemical do. do. do.	10 % ad val.
Coal: Bituminous and shale	Per ton 0 40
Coke	15 % ad val.
Emery, grains and ground, etc.	0 10
Fulminates, not specially provided for in Act	30 % ad val.
Matches, all kinds	20 % ad val.

FREE LIST.

Acids, n.s.p. in Act. (Including hydrochloric, nitric, carbolic, acetic, arsenious, oxalic, picric, tartaric, etc.)	Cod oil for leather dressing, etc., only.
Albumen.	Guano.
Alizarine.	Manure and all substances ex- pressly used for manure.
	Hoofs, unmanufactured.

Alizarine dyes, natural and artificial.	Horns and horn-tips, unmanu- factured.
Aniline salts.	Indigo, and extracts of.
Antimony ore and metal.	Iodine, crude, and re-sublimed.
Antimony sulphite.	Iron, sulphate of.
Apatite.	Kelp.
Argols.	Kieserit.
Arsenic.	Kainit.
Arsenic sulphide.	Lime citrate.
Arsenate of aniline.	Litmus.
Asbestos, unmanufactured.	Magnesium sulphate.
Cinchona barks.	Magnesium, carbonate, native.
Baryta carbonate.	Magnesium.
Baryta.	Manganese oxide and ore.
Barytes, unmanufactured.	Myrabolams.
Bauxite.	Ochres, n.s.p. in Act.
Bismuth.	Oil cake.
Bleaching powder.	Oil, aniline.
Blood, dried.	" cottonseed.
Copper sulphate.	" croton.
Bones, crude, calcined, ground, or steamed.	" palm.
Bone dust for fertilizing only.	" cocoa-nut.
Bone ash for fertilizing only.	Petroleum (subject to Retaliatory Tariff).
Bromine.	Paper stock, crude, all kinds for paper-making only.
Burgundy pitch.	Paraffin.
Cadmium.	Phosphates, crude.
Calamine.	Sulphate of lime, unground.
Camphor, crude.	Platinum, unmanufactured.
Chalk, unmanufactured.	Platinum, manufactured only for chemical uses.
Chromate of iron.	Plumbago.
Coal-tar, crude.	Potash, crude.
Coal-tar preparations (except medicinal preparations and pro- ducts), not colours or dyes, n.s.p. for in Act.	" carbonate.
Cobalt and cobalt ore.	" caustic, including refined.
Cryolith.	" nitrate, crude.
Cudbear.	" sulphate, refined and crude.
Cutch.	" chlorate.
Divi-divi.	" chloride.
Emery ore.	Pyrites (exceeding 20% sulphur).
Farina.	Pumice.
Feldspar.	Salt, in bulk (subject to Retalia- tory Tariff).
Flints.	Salt, packed (packages pay duty), subject to R T.
Grease and oils (n.s.p. in Act) for soap-making and wire-drawing only.	Sodium.
Sodium, chlorate.	Sodium, nitrate.
" sulphate.	Terra alba.
Sulphur, all kinds.	Turmeric.
Sulphuric acid (subject to R.T.).	Turpentine, spirits of.
Tallow and degreas.	Uranium, oxide and salts.
Tar and pitch—wood.	Valonia.
Pitch—coal-tar.	Verdigris.

WHITE LEAD SUBSTITUTE.—The following is a method which has been suggested for the preparation of a substitute for white lead :— Sulphate of lead is used instead of the carbonate, and is ground in oil to which from one-half to one per cent. of borax or other borate has been added.

ICE CREAM MUST GO.—Dr. Alfred Harris, Medical Officer to the parish of St. Mary, Islington, recently caused samples of ice cream sold in the north of London to be taken, and also personally inspected the premises at which Italians manufactured the article. He reported to the public health committee of the vestry last Monday that the commodity was manufactured in close yards, and the articles used in the manufacture were flour, milk, eggs, sugar, and flavouring essences, which were for the most part stored in evil-smelling sleeping rooms. In no instance were the shells of the eggs used broken. They were pierced at each end, and blown by the mouth, the perfect shells being sold to the proprietors of shooting galleries. Three samples of water taken from barrows and three samples of ice cream were submitted to Dr. Klein for examination. Dr. Klein reported that the first three samples were rendered turbid by small *floculi* in suspension, and in each case there was a floccular white precipitate. A microscopical examination revealed in each of the samples of water and ice cream an abundance of microbes. The reports of both medical men were the subject of discussion, and it was suggested that representations should be made to the Local Government Board, urging them to introduce legislation to empower local authorities to register the vendors of these articles, as there was nothing in the Public Health Act to prevent such sale.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are on the whole steady. Benzols continue at 1s. 2d. Crude carbolic acid is inclined to be weaker, partly owing to resales, and 60% has been offering at 1s. 6½d., 70% can be had at 1s. 9d. up to December. Crystals, 40%, are unchanged at 5¾d. Naphtha is also slightly cheaper, crude being quoted 5½d., and solvent 1s. 3½d. Creosote is steady and unchanged. Pitch continues firm, 40s. per ton, f.o.b. East Coast, being quoted for prompt; forward, 37s. 6d.

The sulphate of ammonia market during the past week has been characterised by a strong bear movement. Quotations vary considerably. Nearest probable values are:—Beckton £12. 2s. 6d., London outside makes £12. 10s., Liverpool £12. 7s. 6d., Hull £12. 7s. 6d., and Leith £12. 7s. 6d. to £12. 5s.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is upon the whole a better feeling, and buyers are more readily placing orders both for prompt and forward delivery. This is especially so in ammonia alkali, 58%, which has improved nominally during the week to the extent of 2s. 6d. per ton—price now, in bags, at makers' works, is £3. 2s. 6d. per ton. In caustic soda there is no change to report in prices for spot delivery. Nearest values may be stated as follows:—f.o.b. Tyne, 77%, £10. 12s. 6d.; f.o.b. Liverpool, 74%, £9. 12s. 6d.; 70%, £8. 12s. 6d.; 60%, £7. 12s. 6d.; cream, 60%, £7. 10s. per ton, in 10-ton lots and upwards. The arrangements made between the large makers for the control of prices in the United States is likely to bring about an improvement in that market. Bleaching powder continues in fairly active demand, and without alteration in price for spot delivery: for forward contracts, prices are quoted 5s. per ton lower. Soda crystals flat, and without any further change in price. Chlorate of potash: price on the spot, 5¾d., and forward delivery 5½d. per lb. Saltcake is firmer for forward delivery, 20s. being nominally the quotation, though no business doing thereat, meantime. Sulphate of copper in fairly good request for the time of the year at £15., f.o.b. Business in white powdered arsenic is brisk, and price firm at £14. 5s. per ton, f.o.r. Garston. Potash, caustic and carbonate, are in active demand, and prices are steady both for prompt and forward delivery. Acetates of lime remain firm at recent quotations, but little business is being transacted meantime. Other acetates and acetic acid are without change. Aniline salt and oil are more scarce, and prices are firm at 5½d. and 6d. respectively. For carbolic acid (crystals) there is little or no demand, and no change in price. Liquid carbolic acids are neglected. For sulphate of iron there is more inquiry, and in some districts prices have a stronger tendency. Yellow prussiate of potash is steady in price at 10¼d. to 10½d. per lb. Borax continues to offer at low rates. Nitrate of soda a shade easier on the spot at 8s. 9d. per cwt.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Fig iron, dull: Scotch warrants closed at 42s. 5d., Middlesbrough 35s. 5d. cash, and hematite 43s. 5d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s closed at £41. 2s. 6d. to £41. 7s. 6d. cash, and £41. 11s. 3d. to £41. 16s. 3d. three months. Tin, firm: Straits closed at £69. 10s. to £70. cash, and £69. 15s. to £70. 5s. three months; Australian, £69. 15s.; Lead, firm: Spanish, £9. 17s. 6d. to £9. 18s. 9d.; English, £10. to £10. 1s. 3d. Silesian Spelter, ordinary, £15. 5s. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver first hands, £6. 15s.; second hands, £6. 14s. Copper shares, steady: Cape, 1½ to 1¾; Copiapo, 1¾ to 2; Libiola, 3¼ to 3½; Mason and Barry, 1¾ to 2; Rio Tinto, 15¼ to 15¾; Tharsis, 4¾ to 5¾.

WOLVERHAMPTON, WEDNESDAY.—To-day's quarterly meeting produced a fairly good business. Prices in all departments showed firmness. Marked bars redeclared £7. 10s., merchant bars £6. 10s., and common £5. 10s. Sheets active. Galvanised doubles, £9. 15s. to £10.; plain doubles £6. 12s. 6d. upwards, and lattens £7. 5d.; cold rolled japper's sheets £8. to £8. 5s. for doubles, and £8. 15s. to £9. lattens. Pig iron rigid; local best 55s. to 60s., and cinder 38s. upwards; Derbyshires, 42s. 6d.

REPORT ON MANURE MATERIAL.

During the week there has been a moderate amount of business passing, at prices rather favouring buyers. The quotations for 75/80% Florida phosphate rock, 1895 steamer shipment, remain 8¼d. c.i.f. to Baltic, 8d. to Continent, and 7¾d. to United Kingdom, but buyers do not respond at these prices. The nearest value of hot-air dried South Carolina River rock is probably 6¼d. per unit, and of Peace River rock 6½d. per unit. Algerian offers rather freely at 6¼d. up to 7½d., according to grade.

There is nothing fresh to report in River Plate bones. Handy cargoes are worth about £4. 11s. 3d., but for large sizes something under £4. 10s. would have to be taken. Crushed Kurrachee bones are firmly held for shipment at £4. 14s. ex quay Liverpool, but £4. 12s. 6d. is full value. East Indian bone meal offers freely at £4. 13s. 9d., and business has been done at the price. Common grinding bones are in request, and are fetching £4. 5s. to £4. 7s. 6d., according to quality and condition, ex quay Liverpool.

Nitrate of soda is unchanged. On spot ordinary quality may be had at 8s. 10½d. per cwt., and good to refined at 9s. to 9s. 1½d. per cwt. Due cargoes are worth about 8s. 10½d. per cwt., and later sailings 9s. to 9s. 3d., according to position and test.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady. Good sales have been made in all qualities at full prices during the week. To-day the demand, in sympathy with the supplies, is rather limited. Olive is strong, with a prospect of firmer prices on spot. Prices range from £30. 10s. to £37. per tun, according to quality. Linseed is steady, at 22s. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed is quiet, but is very scarce. Liverpool refined offers at 21s. 9d. to 22s. per cwt. Castor oil is steady. Good seconds Calcutta is being firmly held for 2½d. to 2¾d. store, and 2¾d. quay. First pressure French scarce, at 2½d. per lb. Tallow is in limited demand, with prices steady. Resin firm: Common, 3s. 7½d. to 4s., according to quality. Higher grades steady. Spirits of turpentine unaltered, at 21s. 6d. per cwt. Petroleum dearer. American still 4½d. to 5¼d., and Russian refined 3¾d. per gallon.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia, long weakly and declining, though at not a rapid rate, has since last report gone in for almost a precipitous drop, representing a loss per ton of from 10s. to 12s. 6d. for the week. By the close of last week holders had taken as low as £12. 12s. 6d. To-day perhaps no positive transaction may be known at less money, but there are holders who undoubtedly would sell for less if they got the chance. But even at the big drop there is no briskness on the buying side, but rather the reverse. In fact, the market is weakly to a degree.

Also in general chemicals the feeling has encountered a further lowering, although there may be no actual concession in the quotations given. Continental shipment, which for some time back has contributed all of life that there was going, is now on the rapid decline.

The only section showing activity is that of solid paraffins, for which there is just now a great call, for candle-making purposes chiefly, and prices are very well maintained. Liquid paraffins are also active, but more in the way of makers storing against the demand of the coming winter.

Chief prices current are:—Soda crystals £2. to £2. 1s. nett, Tyne; soda ash 48/52° £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 15s., 70/72° £8. 12s. 6d., 60/62° £7. 12s. 6d.; and cream 60/62° £7. 10s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6¼d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £12. 10s. to £12. 12s. 6d. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2¾d. to 2½d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ¾d. to ¾d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s.; 885° £4. to £5., and 890/895° £4. 5s. to £5. 10s. Week's imports of raw sugar at Greenock were again a blank.

TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical market there is a fair amount of business doing, and shipments continue to be fully up to the average. Caustic 76/77%, is in better demand, and several good orders have recently been booked. Bleach has been going away freely, and there is a scarcity so far as favourite brands are concerned. Prices generally unaltered.

Bleaching Powder, softs, £7. 5s. per ton, nett; hard, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. 15s. per ton, nett; soda crystals, casks, £2. 0s. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt unaltered at 9s. 6d. per ton, f.o.b. Tees.

COALS.—There is very little difference to report in prices. Business continues to be good and the majority of collieries are fully employed. Prices to-day:—Best Northumbrian steam, 11s. to 11s. 6d. per ton; second quality, 10s. to 10s. 6d. per ton; small steam, 5s. to 5s. 6d. per ton; bunker coals unscreened, 7s. to 7s. 6d. per ton; gas coal 7s. 6d. to 7s. 9d. per ton; coke steady, 14s. to 15s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The improvement manifest at the opening of last month has not been of long duration. The situation all round appears to have relapsed again to the characteristic dullness of the year. The demand throughout has been of a too much hand-to-mouth character, which shows a lack of confidence. The firms who have in hand the imports of seed appear to have the regulation of prices according to their own ideas. During the week the import of linseed has been 51,065 quarters, viz.: From Calcutta, 36,843 quarters; St. Petersburg, 2,870 quarters; Catania, 727 quarters; and Buenos Ayres, 10,625 quarters. Of cottonseed there have been no arrivals; also the same of rapeseed. Linseed oil has advanced about 10s. per ton, and closes steady at 20s. 3d. naked, spot; month quoted 19s. 9d.; and November-December, 19s. 6d. to 19s. 7½d. For January-April up to 19s. 6d. paid; casks, 17s. 6d., and ordinary barrels, 22s. 6d. per ton extra; boiled and refined ditto from £1. to £2. per ton extra. Export for the week, 2,700 cwt. Refined cotton oil about 7s. 6d. per ton lower on spot, closing with sellers at 18s. 6d. naked. November-April have remained steady at 17s. 7½d. to 17s. 9d.; crude, 16s. 3d. naked, spot; and 16s. November-April. Export of refined, 2,680 cwt. Rape oil remains flat, without alteration. Vegaline, a white, neutral vegetable fat or butter, is quoted £30. 10s. per ton. Cod oil quiet, £16. to £19. Soft soap, 14s. 6d. per cwt. Olive oil, Smyrna, in barrels, £32. der tun. Boiled drying oil, £12. per ton.

CAKES.—Linseed cakes steady, but demand poor. 95%, pure, £6. 12s. 6d. to £6. 17s. 6d.; Russians, £6. 5s. to £6. 12s. 6d.; oil-cakes, £5. 12s. 6d. Cotton cakes: After the recent decline there is a pause, and sellers to-day are rather firmer, but demand continues moderate. Best makes, spot £3. 15s., and same to April. Rape cakes unchanged.

PAINTS.—The demand is fairly well maintained for the time of the year, and prices are:—Dry colours: Venetian red from £3. 17s. 6d.; red oxide of iron, £7. to £18. per ton; blue black, £4.; mineral black, £3. 15s.; yellow ochre from £3. 15s. White and red lead unchanged. Paint remover, 30s. per cwt.

New Companies.

French Pegamoid Papers Syndicate, Limited.—CAPITAL, £15,000., in 5,000 preference and 10,000 ordinary shares of £1. each. This company has been formed to manufacture paper and all kinds of products made from paper or pulp. The subscribers to the memorandum of association are:—J. J. Byers, 40, King-street, E.C., merchant; M. Dubsky, 34, Rue d'Hauteville, Paris, merchant; L. Orosdi, 57, Boul. de Strasbourg, Paris, merchant; E. E. Shaw, 40, King-street, E.C., merchant; A. G. Shaw, 40, King-street, E.C., merchant; A. Gray, The Mansion, Frogna, N.W., engineer; J. C. Wolfe, 40, King-street, E.C., secretary.

John I. Hopper, Limited.—CAPITAL, £15,000., in shares of £10. This company has been formed to trade as wire-rope manufacturers, colliery store dealers, and galvanisers. The subscribers to the memorandum of association are:—J. I. Hopper, The Lawn, Sunderland, wire-rope manufacturer; Walter Scott, coal-owner, Newcastle-on-Tyne; F. Priestman, Newcastle-on-Tyne, colliery owner; J. H. Burn, jun., Cattle Costs, coal-owner; R. Latimer, Whitby, coal fitter; R. H. Longbotham, Bank-buildings, Wakefield, mining engineer; J. B. Eminson, Seaham Harbour, gent.

Manchester Charterers, Limited.—CAPITAL, £20,000., in shares of £40. each. This company has been formed to maintain regular lines of steamships between Manchester and Salford and foreign ports. The subscribers to the memorandum of association are:—W. J. Crossley, Pottery-lane, Openshaw, Manchester, engineer; R. Spencer, New High-street, Manchester, merchant; H. Greaves, 13, Palace-street, Market-street, Manchester, spinner; W. Briggs, 71, Cannon-street, Manchester, merchant; C. R. Allen, 5, Clarence-street, Albert-square, Manchester, solicitor; T. Dentith, Hargreaves-street, Red-bank, Manchester, chemical manufacturer; W. Pinkney, 5, Cross-street, Manchester, steamship owner.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Dust Collector. H. Richter. 18,108. September 24.
Incandescent Gas Burners. F. Fischer. 18,145. September 24.
Recovering Precious Metals from their Ores. H. L. Sulman. 18,146. September 24.
Extracting Gold and Silver. F. C. May. 18,151. September 25.
Manufacture of Nitro-cellulose, Oxy-nitro-cellulose, and Hydro-nitro-cellulose. G. H. Hasie. 18,156. September 25.
Apparatus for the Electrolytic Separation of Gold. J. J. Maclean. 18,172. September 25.
Evaporating Liquids, Brine, etc. R. Pearson. 18,173. September 25.
Drying Substances which are Viscous in the Hot State. H. H. Lake. 18,214. September 25.
Obtaining Pure Phenols from Mixtures. L. Lederer. 18,272. September 26.
Extracting Precious Metals. A. E. Morgans. 18,297. September 26.
Mantles for Incandescent Gas Lights. H. Blücher. 18,309. September 27.
Extracting Vegetable Fibres Mechanically. N. Ismailjee. 18,311. September 27.
Washing Powder. S. Rosenblum and F. L. Bartelt. 18,422. September 28.
Extracting Precious Metals. J. Mactear. 18,425. September 28.
Gas Scrubbing Apparatus. S. Hersey, and Kirkham, Hulett and Chandler, Ltd. 18,440. September 28.
Gas Condensing and Scrubbing Apparatus. Kirkham, Hulett and Chandler, Ltd. 18,441. September 28.
Using Liquid Fuel. S. H. Terry. 18,443. September 28.
Gas Generating Plant. R. H. Thwaites. 18,445. September 29.
Taps for Chemical Fluids. T. W. F. Cherry. 18,462. September 29.
Gas Enriching Apparatus. W. Kemp. 18,510. September 29.
Manufacture of Alkylrhodonates and Acid Chlorides of Chinolin, Pyridin, Antipyrin, Isochinolin, and their Derivatives. A. M. Clarke. 18,516. September 29.
Process and Apparatus for Manufacture of Cyanides. J. Pfeiffer. 18,519. September 29.
Apparatus for Manufacture of Alkaline Metals. J. Pfeiffer. 18,520. September 29.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

H. TYRER AND G. TYRER, under the style of Cray's Valley Brick Works, Paul's Cray, Kent, manufacturers of bricks.

W. MAGRATH, J. W. MAGRATH AND A. ROBERTSON, paint, colour and varnish manufacturers, Birmingham, under the style of the Birmingham Colour Co., so far as regards A. Robertson.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.
BOWES, ALFRED, New Kent-road, and Wyld's-rents, Long-lane, Bermondsey, S.W., spelter manufacturer.

IMPORTS OF CHEMICAL PRODUCTS AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending September 29th.

Acetic Acid—
Holland, 100 pkgs. Beresford & Co.
" 100 A. & M. Zimmermann
" 11 F. J. Putz & Co.
" 40 Philipps & Graves

Acetone—
Holland, 2 pkgs. Brentford & Co.
" 2 Beresford & Co.

Alkali—
Germany, 399 c. Pillow, Jones & Co.
France, 210 P. Hecker & Co.
Belgium, 3,360 R. Waters

Alum—
Holland, 30 pkgs. Beresford & Co.
" 183 Ohlenschlager

Amyl Acetate—
Germany, 5 pkgs. F. Stahl Schmidt & Co.

Aniline—
Holland, 3 pkgs. L. C. & D. Rly.

Asbestos—
Canada, £1,000 J. Owen
" 150 Beck & Pollitzer
France, 18 Mory & Co.

Barytes—
Holland, 44 cks. O'Hara & Hoar
" 22 W. Pope & Co.
" 23 Locke, Lancaster & Co.

" 23 J. L. Lyon & Co.
Belgium, 81
Germany, 80 W. Harrison & Co.

Camphor—
Hong Kong, 143 pkgs. Lewis & Peat
Germany, 206 S. Figgis & Co.
" 17 City Coml. Wf. & Ld.
Hong Kong, 100

Caoutchouc—
Cape, 308 c. L. & I. D. Jt. Co.
Rangoon, 30
Zanzibar, 9
France, 1
" 5 Mory & Co.
Germany, 7 Prop. Bull Wf.
E. Indies, 113 Huttenbach & Co.
" 192 Anderson, Weber & Smith

" 144 T. Merry & Son
Venezuela, 93 Simes & Co.
Madagascar, 3 W. M. Smith & Sons
" 644 Procter Bros.
" 35 Hammond & Co.
" 3 Kleinwort, Sons, & Co.

Greytown, 12 Prop. Bull Wf.
Sydney, 6 W. C. Bacon & Co.
Savannah, 1 Fruhling & Goschen

Carbolic Acid—
Holland, 872 pkgs. J. Owen

Carbonic Acid—
Holland, 50 pkgs. Union Whvs. Co.

Carbonic Acid Gas—
Holland, 214 pkgs. Carey & Sons

Castor Oil—
France, 70 brls. Snowdon, Sons, & Co.
" 35 Lucas & Spencer's Wf. & Ld.
E. Indies, 50 cks. Ross & Deering

Chemicals (otherwise undescribed)—
Germany, 12 pkgs. T. H. Lee
" 14 L. & I. D. Jt. Co.
" £5 5 Hernu, Peron & Co.
" 10 Craven & Co.
" 108 A. & M. Zimmermann

" 1 A. F. White & Co.
" 4 Domier & Co.
Holland, 12 J. Owen
Belgium, 2 T. Palmer

Chloride of Sulphur—
Holland, 16 pkgs. Typke & King

Cream of Tartar—
France, 2 pkgs. G. Ward & Sons
" 5 M. Ashby, Ltd.
" 2 B. & F. Wf. Co.
" 20 H. W. Peabody & Co.

Dextrine—
Germany, 100 pkgs. Hernu, Peron & Co.

Disinfectants—
Germany, 2 pkgs. Rosenberg, Loewe & Co.

Dyestuffs—
Argols
Natal, 3 pkgs. J. R. Thomson & Co.

Cochineal
Canaries, 4 pkgs. Lewis & Peat
" 30 W. H. Cole & Co.

Gutch
Rangoon, 250 pkgs. A. Howden & Co.
" 300 Arracan Co.
E. Indies, 200 J. Owen
Rangoon, 12 H. A. Litchfield & Co.

Extracts
Germany, 1 pkgs. E. F. Langdale & Co.
Belgium, 11 pkgs. T. H. Lee
Germany, 50 J. Knill & Co.
Denmark, 4 Perkins & Homer
" 1 M. D. Co.
France, 50 L. J. Levinstein & Sons
" 60 B. & N. Wf. Co.

Gambier
E. Indies, 372 pkgs. Beresford & Co.
Germany, 287
Holland, 216
E. Indies, 3,547 Adamson, Gilfillan & Co.

Indigo
E. Indies, 43 cts. Parry & Co.
" 23 L. & I. D. Jt. Co.
" 22 Park, Macfadyen & Co.
" 18 R. von Glehn & Sons

Safflower
E. Indies, 2 pkgs. Devitt & Hett
" 58 Lewis & Peat

Saffron
Spain, 1 pkgs. Richardson & Co.

Shumac
Italy, 200 pkgs. J. Knill & Co.

Tanner's Bark
Natal, 76 t. A. & W. Nesbitt
" 13 Flack, Chandler & Co.
Germany, 25 Devitt & Hett
Melbourne, 103 Culverwell, Brooks & Co.

Turmeric
E. Indies, 300 pkgs. Langstaff & Co.
" 250 H. A. Litchfield & Co.

Valonia
A. Turkey, 35 t. Adam Bros.
" 25 Boucher, Mortimore & Co.

Dyestuffs (otherwise undescribed)
France, 4 pkgs. Hernu, Peron & Co.

Farina—
Holland, 50 pkgs. E. & T. Pink
" 150 P. Windmuller & Co.
" 500 G. Hornzee
" 50 Prop. Chmbln.'s Wf.
Germany, 25 T. Palmer
" 512 Ohlenschlager Bros.
France, 4 Hernu, Peron & Co.

Glucose—
Germany, 40 pkgs. 40 c. Anderson, Becker & Co.
" 12 95 c. J. Knill & Co.
" 120 939 Prop. Chmbln.'s Wf.

" 500 500 J. Barber & Co.
Holland, 50 50 Prop. Sun. Wf.
U. States, 993 Barrett, Tagant & Co.

" 549 3,065 J. T. Morton
" 300 1,650 Union Lthge Co., Ltd.

" 250 1,500 Prop. Chmbln.'s Wf.
" 594 3,565 R. G. Hall & Co.

Infusorial Earth—
Germany, £25 T. H. Lee
" 35 W. Byford
" 137 Beck & Pollitzer

Lead Acetate—
Germany, 30 pkgs. F. Boehm

Manganese Ore—
Japan, 140 t. Matheson & Co.
Holland, 1 C. S. Lovell

Manure—
Sydney, 100 t. A. Hunter & Co.
Madagascar, 8
Cape, 7 L. & I. D. Jt. Co.
France, 30 J. Burnett & Sons

Mica—
E. Indies, £2,125 W. M. Smith & Sons
Ceylon, 200 F. Wiggins & Sons

Ochre—
Belgium, 4 cks. Pickford & Co.
" 138 W. Harrison & Co.
Holland, 7 pkgs. Philipps & Graves
France, 7 brls. J. Burnett & Sons

Paraffin Wax—
U. States, 80 brls. G. H. Frank
Rangoon, 777 pkgs. H. Hill & Sons

Phosphate Rock—
Belgium, 25 t. J. Gibbs & Co.
" 220 Anglo-Cont. Guano Wks.
" 3 H. & E. Albert
" 160 G. Allen

Plumbago—
Ceylon, 375 brls. Prop. Sun. Wf.
" 409 R. G. Hall & Co.
" 295 J. Thredder, Son, & Co.

" 150 Lucas & Spencer's Wf.
" 70 L. & I. D. Jt. Co.
" 70 Doultan & Co.
Japan, 100 cks. L. & I. D. Jt. Co.
Germany, 20 B. Gallaway
" 170 cs. Prop. Scott's Wf.

Potassium Bicarbonate—
Holland, 29 pkgs. 5 cks. A. & M. Zimmermann

Potassium Carbonate—
France, 119 c. J. A. Reid
Germany, 40 Petri Bros.
" 100 F. Boehm

Potassium Chloride—
Germany, 100 pkgs. W. G. Blagden

Potassium Cyanide—
Germany, £2 H. Lambert

Rosin—
France, 10 brls. Lucas & Spencer's Wf. Co.
U. States, 250 Moore & Hole
" 200 G. Ward & Sons
" 500 F. & S. Chiesman & Co.

Saltpetre—
Germany, 127 cks. P. Hecker & Co.
" 40 J. Hall & Son
E. Indies, 672 bgs. Ross & Deering
" 656 L. & I. D. Jt. Co.

Sodium Acetate—
France, 29 pkgs. S. F. Waters & Co.

Sodium Hyposulphite—
Holland, 100 pkgs. Beresford & Co.
Germany, 12 F. Boehm

Starch—
Germany, 1,595 pkgs. Horne & Co.
" 400 L. Sutro & Co.
" 188 Philipps & Graves
Holland, 130
" 1,040 Little & Johnston
Belgium, 85 J. Barber & Co.
" 240 Prop. Scott's Wf.
" 40 Leach & Co.
" 40 H. Johnson & Sons

Stearine—
Belgium, 15 cks. D. C. Thomas & Sons
France, 18 Beresford & Co.
Belgium, 9 H. Hill & Sons
Holland, 70 Palmer & Co.

Sulphuric Acid—
Holland, 1 pkgs. G. Rahn & Co.

Tallow and Stearine—
U. States, 16 cks. South London Clearing Co.

Tartaric Acid—
Holland, 28 pkgs. Kirkpatrick & Co.
" 25 B. & F. Wf. Co.
" 5 F. C. Devon & Co.

Tin Oxide—
Germany, 3 cks. H. Lambert

Turpentine—
N. Russia, 53 brls. F. & S. Chiesman
" 104 C. B. Leighton & Co.

" 26 Dussek Bros. & Co.

Ultramarine—
Germany, 21 cs. Steinhoff, Sons, & Co.
" 3 H. Brooks & Co.
" 15 cks. H. Lambert
Holland, 2 Hernu, Peron, & Co.

" 4 Haeflner, Hilpert, & Co.
Belgium, 40 Little & Johnston
" 18 11 pkgs. W. Harrison & Co.

" 19 Leach & Co.
Belgium, 32 cks. T. Hamilton
" 20 H. Kohnstamm

Varnish—
France, 6 pkgs. Flageolet & Co.

Vermilion—
Germany, 1 cs. Philipps & Graves

White Lead—
Germany, 6 cks. Magee, Taylor, & Co.
" 48 Randall Bros.
" 20 G. Farmiloe & Sons
Holland, 20 Burrell & Co.
" 20 Blundell, Spence, & Co.
Belgium, 17 J. L. Lyon & Co.
France, 45 W. Harrison & Co.

Wood Pulp—
Germany, 158 pkgs. Henderson, Craig, & Co.
" 44 W. Friedlander
Holland, 39
" 1,304 Little & Johnston
" 1,304 E. J. & W. Goldsmith
" 108 Horton Kirby Paper Co.

" 834 Moreton Cox Bros.
Norway, 800 L. Knoeblauch
" 1,112 W. G. Taylor & Co.

Zinc Oxide—
Germany, 10 cks. Beresford & Co.
" 127 brls. M. Ashby, Ltd.
Holland, 50
" 500 cks. Soundy & Sons
" 50 pkgs. Prprs. Dowgate Dk.

Zinc Sulphate—
Germany, 16 pkgs. F. Smith

Zinc White—
Holland, 50 cks. Burrell & Co.

LIVERPOOL.

Week ending September 27th.

Acid—
Havre, 1 cs. Cunard S. S. Co., Ltd.

Alkali—
Rotterdam, 4 cs.

Barytes—
Rotterdam, 5 cks.
Antwerp, 251 bgs.

Barytes Sulphate — Antwerp, 12 cks.	
Borate of Lime — Antofagasta, 1,359 bgs. Havre, 750	Cunard S. S. Co., Ltd.
Caoutchouc — Havre, 3 cs.	Cunard S. S. Co., Ltd.
Castor Oil — Calcutta, 319 cs.	
Chemicals (otherwise undescribed) Hamburg, 16 kgs.	
Colours — Hamburg, 80 cks. 15 cs. Stettin, 36 Antwerp, 12	J. T. Fletcher & Co.
Copperas — Hamburg, 31 brls.	
Cream of Tartar — Barcelona, 15 bds. Tarragona, 5 bds.	Sachse & Klemm
St. Nazaire, 1 ck.	
Dyestuffs — Argols Bordeaux, 54 cks. Oporto, 22	German Bank of London
Gochineal Las Palmas, 30 bgs.	Canary Trading Co.
Gutch Singapore, 649 bxs. Divi Divi Hamburg, 320 bgs. Havre, 51 bgs.	Cunard S. S. Co., Ltd.
Extracts Bordeaux, 25 cks. Antwerp, 50	
Gambier Singapore, 94 bgs.	
Indigo Sierra Leone, 17 bgs.	Cie Frd'Afrique
Myrabolams Calcutta, 275 bgs.	
Orchella Hamburg, 46 bls.	
Shumac Limassol, 500 bgs.	Cyprus Co., Ltd.
Valonia Syra, 105 bgs. Smyrna, 55 221 t.	Barff & Co. G. T. Scrim Barry Brs.
Glucose — N. York, 30 pls.	
Iron Oxide — Gijon, 80 bgs.	Bahr, Behrend & Ross
Lamp Black — Gothenburg, 60 cs. 50 cks.	
Limestone — Antwerp, 1 cs. Havre, 1 crt. 1 cs.	Cunard S.S. Co., Ltd.
Manganese Ore — Coquimbo, qty. Vizagapatam, 998 t.	Darwen & Mostyn Iron Co.
Phosphate — Bona, 1,825 t. Terneuzen, 390	S. Pitt & Co.
Phosphate Rock — C. Harbour, 2,550 t.	United Alkali Co.
Pitch — Boston, 1 brl.	Insole & Gurnley
Potash — Montreal, 27 brls.	
Pyrites — Huelva, 3,900 t.	Matheson & Co.
Quicksilver — Gijon, 76 flks.	A. Ruffer & Sons
Saltpetre — Calcutta, 1,646 bgs. Hamburg, 50 brls. 65 kgs.	
Soap — Montreal, 200 cs. Boston, 10	
Starch — Rotterdam, 135 cs.	
Tallow — Rotterdam, 35 lcs.	
Tannic Acid — Hamburg, 5 cks.	

Tartar — Bordeaux, 17 cks.	
Tartaric Acid — Rotterdam, 1 ck. Antwerp, 7 brls.	
Terra Umber — Larnac, 50 t.	Cyprus Co., Ltd.
Ultramarine — Rotterdam, 2 cks. Hamburg, 8	
Verdigris — Bordeaux, 4 cks.	
White Lead — Rotterdam, 33 cks.	
Wood Pulp — Montreal, 5,806 bds. Sannesund, 3,610 bds. 77 lds. Gothenburg, 136 Christiania, 5,539 Holmstrand, 1,272	A. Rice & Co.
Zinc Oxide — Rotterdam, 15 cks. 100 cs. Antwerp, 25 brls.	
Zinc White — Stettin, 2 brls.	

MANCHESTER.

Week ending September 29th.

Acetate of Lime — Nantes, 155 bgs.	
Alumina — Rotterdam, 63 cks.	
Alumina Sulphate — Rotterdam, 60 cks.	Simpson, Howden, & Co.
Antimony Salts — Rotterdam, 2 cks.	Simpson, Howden, & Co.
Barium Chloride — Hamburg, 12 cks.	
Cadmium — Hamburg, 1 cs.	
Calcium Nitrate — Hamburg, 1 cs.	
Carbonic Acid — Rotterdam, 30 tubes.	Simpson, Howden, & Co.
Chemicals (otherwise undescribed) Rouen, 18 cks. Rotterdam, 3	Simpson, Howden, & Co.
Colours — Stettin, 100 cks. Rotterdam, 3 19 cs. " 93 53 84 brls.	Simpson, Howden, & Co.
Dextrine — Stettin, 50 bgs.	
Dyestuffs — Indigo Rotterdam, 2 chts.	
Farina — Stettin, 100 bgs. Hamburg, 370 Rotterdam, 250 bls.	Simpson, Howden, & Co.
Limestone — Antwerp, 1 crt.	
Naphthol — Hamburg, 5 cks.	
Ozokerit — Stettin, 76 pkgs.	
Potash — Hamburg, 6 cks.	
Salt — Hamburg, 250 bgs.	
Saltpetre — Hamburg, 1 ck.	
Sodium Chromate — Hamburg, 4 cks.	
Starch — Rotterdam, 80 cs. Antwerp, 40	
Tannic Acid — Hamburg, 12 cks.	
Tartar — Hamburg, 4 cks.	
Tartaric Acid — Rotterdam, 10 kgs. 2 cks.	Simpson, Howden, & Co.
Tin Perchloride — Antwerp, 2 cks.	
Ultramarine — Rotterdam, 10 cs.	

Hamburg, 32 cks. Rotterdam, 9 cs. 12 cks.	Simpson, Howden, & Co.
Wood Pulp — Christiania, 2,400 bls. Kotka, 4,759	
Zinc Chloride — Rotterdam, 1 ck.	Simpson, Howden, & Co.
Zinc Oxide — Rotterdam, 10 cks. " 4	Simpson, Howden, & Co.

HULL.

Week ending September 29th.

Acetic Acid — Antwerp, 10 pkgs.	G. Myers
Ammonium Sulphate — Antwerp, 54 cks.	Bailey & Leatham
Antimony — Hamburg, 12 cs.	Lofthouse & Saltmer
Barytes — Antwerp, 200 bgs. 21 cks.	Bailey & Leatham
Bremen, 37 cks. Antwerp, 282 pkgs. Rotterdam, 70 cks.	E. Holmes H. F. Pudsey W. & C. L. Ringrose
Camphor — Hamburg, 50 cs.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed) Stettin, 11 pkgs.	Wilson, Sons, & Co., Ltd.
Dunkirk, 45 pkgs. Hamburg, 6 cs. 14 Antwerp, 55	" 18 cks. " "
Cod Oil — Christiania, 50 brls.	Wilson, Sons, & Co., Ltd.
Colours — Stettin, 10 cks.	Wilson, Sons, & Co., Ltd.
Antwerp, 1 Rotterdam, 4	Bailey & Leatham 200 pkgs. W. & C. L. Ringrose
" 2 cs. 21	Wilson, Sons, & Co., Ltd.
" 12	Wilson, Sons, & Co., Ltd.
Bremen, 4 6	Veltmann & Co.
" 14	J. Pyefinch & Co.
Amsterdam, 4	W. & C. L. Ringrose
Antwerp, 6	Wilson, Sons, & Co., Ltd.
Cream of Tartar — Rotterdam, 4 cks.	Hutchinson & Son
" 3	W. & C. L. Ringrose
Cryolite — Copenhagen, 1 ck.	Wilson Sons, & Co., Ltd.
Dyestuffs — Alizarine Rotterdam, 30 cks.	W. & C. L. Ringrose
Madder Rotterdam, 1 ck.	W. & C. L. Ringrose
Myrabolams Bombay, 15,118 bgs.	
Farina — Ghent, 240 cs.	Wilson, Sons, & Co., Ltd.
Harlingen, 250 bgs. Hamburg, 300	
Glucose — Stettin, 700 bgs.	
Kaolin — Rotterdam, 20 cks.	Reckitt & Sons
Lead Acetate — Hamburg, 3 cks.	J. Good & Sons
Oxalic Acid — Rotterdam, 9 cks.	Bailey & Leatham
Paint — Hamburg, 7 cs.	Wilson, Sons, & Co., Ltd.
Phosphate — Ghent, 101 t.	
Pitch — Rotterdam, 58 cks.	Hutchinson & Son

Potash — Antwerp, 4 dms.	
Soap — Stavanger, 3 cs.	Wilson, Sons, & Co., Ltd.
Sodium Acetate — Rouen, 18 cks.	Blundell, Spence, & Co.
Starch — Bremen, 3,177 cs. Antwerp, 50	Veltmann & Co. Wilson, Sons, & Co., Ltd.
Stearine — Antwerp, 63 bgs.	Wilson, Sons, & Co., Ltd.
Tar — Stockholm, 10 brls.	Wilson, Sons, & Co., Ltd.
Tartaric Acid — Rotterdam, 4 cks.	Hutchinson & Son
Ultramarine — Rotterdam, 12 cks. 1 cs.	Hutchinson & Son
Varnish — New York, 6 brls.	Wilson, Sons, & Co., Ltd.
Waste Salt — Dunkirk, 100 bgs.	Wilson, Sons, & Co., Ltd.
Hamburg, 200	"
White Lead — Rotterdam, 146 cks.	Hutchinson & Son
" 27	W. & C. L. Ringrose
Wood Pulp — Hango, 8 bls. Helsingfors, 132 " 62 " 111 bds.	J. Good & Sons " Furley & Co.
Zinc Oxide — Antwerp, 50 cks.	Bailey & Leatham

GLASGOW.

Week ending October 4th.

Acetate of Lime — Philadelphia, 703 bgs.	
Acetic Acid — Rouen, 8 cks.	
Aniline Colours — Rotterdam, 7 cs. 7 cks.	J. Rankine & Son
Barytes — Rotterdam, 116 cks.	J. Rankine & Son
Barytes Sulphate — Antwerp, 322 bgs. 55 cks.	
Bisulphate — Rotterdam, 1 brl.	J. Rankine & Son
Boracite — Panderma, 820 t.	
Castor Oil — Calcutta, 2 cs. Antwerp, 85 cks.	
Caustic Magnesia — Hamburg, 26 cks.	
Chemicals (otherwise undescribed) Hamburg, 5 cs.	
Chrome Alum — Rotterdam, 5 brls.	J. Rankine & Son
Colours — Antwerp, 2 cks. Rotterdam, 23 pkgs. Hamburg, 4 3 cs.	
Dyestuffs — Alizarine Rotterdam, 1 cs. 9 cks.	J. Rankine & Son
" 155 pkgs.	
Extracts Rouen, 15 cks. Nantes, 100	
Indigo Rotterdam, 3 chts.	J. Rankine & Son
Myrabolams Calcutta, 100 bgs. 1 pkge.	
Turmeric Calcutta, 52 bgs.	
Glucose — New York, 292 brls.	
Guano — Tromsø, 2,327 bgs.	

Danzig, 1 1 37	Melbourne, 123	Tar Salts	Barcelona, 3 cks.
Barcelona, 1 3 q. 36	Montreal, 400	New York, 1 t. 2 c. 1 q. £40	Bathurst, 20
Lisbon, 12 19	Nagasaki, 50	Boston, 17 cks.	Boca, 33 brls.
Havana, 15 19	N. Orleans, 180 25 brls.	Cobalt Oxide—	Bombay, 20 10 55 dms. 1 cs.
Bordeaux, 10 53	Odessa, 50	Nagasaki, 2 c. £62	B. Ayres, 130 207
Fairwater, 2 68	Oporto, 50	Colours—	Ceara, 8
Ammonium Chloride—	Penang, 50	Pernambuco, 10 cs.	Cienfuegos, 50
Nantes, 550 t. 3 c. £2,669	Philadelphia, 25 crts.	Santos, 15 kgs.	Danzig, 100 bgs.
Havre, 175 3 2 q. 782	Rangoon, 50	Seville, 1 bx.	E. London, 25
Philadelphia, 35 19 2 923	Rotterdam, 112	Copperas—	Galatz, 200 25
Galatz, 1 16 3 68	Rouen, 30	Calcutta, 15 t. 11 c. £27	Hamburg, 100
Ibrail, 4 6	San Francisco, 10	Beyrout, 3 5 5	Havana, 2
Ancona, 10 19	Santander, 15	Cadexa, 10 10 20	Ishon, 20 59 1
Stettin, 5 121	Stettin, 204	Copper Sulphate—	Manaos, 2 1 brl.
Yokohama, 1 29	Toronto, 195	Bilbao, 5 t. 18 c. 1 q. £85	Montreal, 75
Ammonium Sulphate—	Vera Cruz, 20 169 bxs.	Smyrna, 1 4 1 18	New York, 1 bx. 76 21 155 dms. 9
New York, 24 t. £331	Bahia, 25	Corunna, 2 2 2 31	Para, 12 tcs. 17 5 1
Valencia, 50 639	Cardenas, 30	Nantes, 5 2 3 75	Parnabyba, 2
Amorphous Phosphorus—	Constantinople, 40	Dakar, 19 1 15	Philadelphia, 75 150
Hiogo, 8 c. 3 q. £132	Corunna, 16	Piraeus, 15 10	Rangoon, 120 50 bgs. 4
Antimony—	E. London, 4	Rouen, 53 12 78 8	
New York, 50 cks.	Fairwater, 342	Santos, 9 3 8	St. John's, N.B., 6
Asbestos—	Havana, 329	Talcahuano, 2 30	Sao Paulo, 1
Antofagasta, 1 cs.	Madeira, 10	Odessa, 2 11 36	Valparaiso, 220 2 35 brls. 9
Vera Cruz, 1	Malaga, 25 50 kgs.	Marseilles, 4 19 1 69	Beaverfalls, 2
Barium Chlorate—	Milwaukee, 200	Gothenburg, 1 5 2 16	Belize, 210
Rotterdam, 8 c. £40	M. Video, 100	Porto Alegre, 2 10 2 36	Colombo, 1
Bleaching Powder—	Newport News, 104	Rotterdam, 2 9 2 34	Genoa, 32
Boston, 717 cks. 10 bxs.	New York, 100	Constantinople, 2 4 2 16	Kingston, Jam., 19
Chicago, 60 10 cs.	Nuevitas, 40	B. Ayres, 1 4 1 15	Manila, 1,900 15 1
Havana, 12	Parnabyba, 4	Disinfectants—	Maranham, 11 1 1
Lisbon, 24	Pimental, 100	Rosario, 1 q. £5	M. Video, 11 26
Montreal, 339 50	St. Petersburg, 35	Dried Blood—	Old Calabar, 44
New York, 133	Savanna, 50 100 brls.	Rouen, 10 t. £75	Pernambuco, 191 50 9 dms.
Rouen, 59	Seville, 285	Guano—	Porto Alegre, 48
San Sebastian, 59	Shanghai, 2	Seville, 7 c. 7 q. £66	Rio de Janeiro, 200
Vera Cruz, 18 50 brls.	Tampico, 50	Iron Chromate—	Sagua la Grande, 9 brls.
Ancona, 18	Valencia, 25 5	Rotterdam, 4 t. 12 c. 1 q. £75	Amsterdam, 11 6 dms.
Newport News, 160	Amsterdam, 100	Lamp Black—	Antwerp, 3
Oporto, 10	Barcelona, 20	M. Video, 2 cks.	Barranquilla, 1 1
Rio de Janeiro, 20	Callao, 20	Lime—	Calcutta, 2
Baltimore, 52	Cartagena, N.G., 12	Bey Beach, 3 t. 16 c. £9	Constantinople, 640
Havre, 25	Charlotte Town, 31	Litharge—	Halifax, 15 brls.
Bone Waste—	Copenhagen, 8 10 kgs.	B. Ayres, 8 cks.	Leghorn, 18
Rouen, 12 t. £85	Demerara, 10	Magnesia—	Santiago, 2 tcs.
Boric Acid—	Maranham, 10	Alicante, 20 cs.	Tripoli, 10
New York, 25 cks. £168	Pernambuco, 100	Pernambuco, 5 cks.	Vera Cruz, 142 8
Borax—	Port Louis, 30	Constantinople, 1	Volo, 5
Danzig, 2 t. 3 c. 3 q. £43	Toronto, 75	Magnesium Carbonate—	Paraffin Scale—
Montreal, 2 11 86	Valparaiso, 79	M. Video, 5 c. 1 q. £14	Leghorn, 2 cs.
N. York, 189 cks. 16 12 1 79	Yokohama, 50	St. Petersburg, 200 cs.	Paraffin Wax—
Rotterdam, 4 6 89	Chemicals (otherwise undescribed)	Magnesium Sulphate—	Odessa, 34 bgs.
Ghent, 1 2 22	Bussorah, 2 t. £73	Corinto, 20 kgs.	Trieste, 200
Antwerp, 2 12 3 53	Naples, 5 c. 141	Manganese Ore—	Smyrna, 31
B. Ayres, 1 6 2 25	Bombay, 3 15 13	Rouen, 10 t. 11	Syria, 22
Malaga, 1 17 34	Rotterdam, 7 7 14	Manure—	
Bilbao, 5 4 1 112	Genoa, 6 11	Valencia, 75 t. 14 c. 3 q. £245	Phosphorus—
Hamburg, 3 6 72	Alexandria, 1 37	Philadelphia, 1 14	Vera Cruz, 6 cs.
Rouen, 5 108	Smyrna, 15 3 28	Genoa, 102 12 2 345	Trinidad, 2
Rosario, 1 25	Bahia, 2 4	Hamburg, 51 3 240	Hiogo, 15 1 t. 5 c. 1 q. 400
Odessa, 25 2 3 518	Boston, 3 8 17	Halifax, 4 9	Picric Acid—
Calcined Magnesla—	New York, 10 11 347	St. John's, Nfld., 4 9	New York, 17 c. 3 q. £80
Genoa, 1 cs.	Bordeaux, 2 cks. 7	Ochre—	Plumbago—
Trieste, 1	China Clay—	Porto Alegre, 10 brls.	Rio de Janeiro, 1 ck.
Calcium Chloride—	B. Ayres, 20 t.	St. John's, Nfld., 40 kgs.	Potash—
M. Video, 4 t. 11 c. £12	Odessa, 100 bgs. 10 c.	Oxalic Acid—	Rosario, 8 c. £14
Camphor—	Boston, 1,783 10 c.	Barcelona, 11 c. £20	Potassium Bicarbonate—
Accra, 1 cs.	Maranham, 3	Paint—	B. Ayres, 15 c. £32
Caoutchouc—	New York, 49	Cadiz, 25 cks. 20 dms	Potassium Bichromate—
Pernambuco, 2 cs.	Rio de Janeiro, 4 2	Demerara, 2 3 cs. 2	Smyrna, 2 t. 3 c. 2 q. £87
Carbolic Acid—	Calcutta, 30	Hamburg, 2 2	Syria, 12 20
Hamburg, 1 t. 10 c. £90	Genoa, 15 4	Havana, 1 12	Potassium Carbonate—
Philadelphia, 3 12 180	Leghorn, 5	Malta, 5 tins	Montreal, 4 c. 2 q. £5
Vera Cruz, 2 1 q. 9	Coal Products—	Maranham, 2	Potassium Chlorate—
Barcelona, 6 2 18	Aniline Colours	New York, 28 41 kgs.	St. Petersburg, 25 t. 19 c. 2 q. £1,561
Castor Oil—	Hamburg, 1 kg.	Ponce, 229	Philadelphia, 5 318
Demerara, 30 cs.	Constantinople, 5 cs.	St. John's, Nfld., 20 5 brls. 408	Ghent, 2 112
Caustic Potash—	Barcelona, 11 cks.	Salt Pond, 1 cs. 44	Antwerp, 1 15 99
Boston, 1 t. 1 c. £20	Aniline Dyes	Sierra Leone, 87	Rotterdam, 16 48
Caustic Soda—	Pernambuco, 1 cs.	Singapore, 20	Leghorn, 10 28
Acajutla, 35 dms.	Aniline Oil	Talcahuano, 20	Naples, 10 28
Adelaide, 98 49 bxs. 6 cks.	Genoa, 3 dms.	Alexandria, 2 15	Boston, 2 10 160
Alexandria, 17	Rouen, 5	B. Ayres, 2	N. York, 6 168
Antwerp, 35	Boston, 10	Callao, 4 87	Hiogo, 37 10 2,250
Aracaju, 95	Aniline Salts	Cavite, 34 170	E. London, 5 14
Baltimore, 188	Boston, 108 cs.	Demerara, 3	Malaga, 8 30
Beyrout, 25	Constantinople, 3 cks.	Para, 16	Fairwater, 1 5 73
Bilbao, 30	New York, 4	Picton, B.C., 1 bx. 3 1	Hamburg, 5 14 335
Boston, 150 50	Naphthol	Rangoon, 2 10	Vera Cruz, 8 cks. 6 194
B. Ayres, 51	New York, 2 cks.	Sherbro, 2	Copenhagen, 15 46
Calcutta, 173	Naphthol Colour	Sulina, 5	Potassium Prussiate—
Cardenas, 15	New York, 22 sks.	Trieste, 40	Genoa, 1 t. £90
Chicago, 350	Pitch	Valparaiso, 12	Potassium Stannate—
Fiume, 135	B. Ayres, 21 dms	Calcutta, 80 200	Bombay, 1 t. 6 c. 3 q. £100
Galatz, 194	Catania, 20 brls.	Cienfuegos, 1 2 tcs.	Quicksilver—
Genoa, 228	Rouen, 2 cks.	Coquimbo, 6 21	C. C. Castle, 2 brls.
Hamburg, 78	Valparaiso, 10	Ibrail, 6 160	Salt—
Hong Kong, 72	Galatz, 70	Lagos, 6 pks. 160	Accra, 17 t. 10 c.
Leghorn, 110	Manaos, 12 bdl.	Mexico City, 9	Adelaide, 6
Marseilles, 50	Tar	Sierra Leone, 9	Amsterdam, 100
Matanzas, 60	Boston, 5 dms.	Painters' Colours—	Antwerp, 375
	Demerara, 10 brls.	Bahia, 60 kgs.	Appam, 5
	St. John's, Nfld., 25 30 hf.-brls.		Azim, 10

Baltimore, 115		Curacao, 200		St John's, Nfld., 20 kgs.		Seville, 1 brl.	
Belize, 42	4	Genoa, 200	1	Bombay, 40		B. Ayres, 8	3 cks.
Berraco, 12	10	Ilolo, 2	2	M. Video, 67		Calcutta, 3	
Boston, 220		Lagos, 100	10	Valparaiso, 100	120	Genoa, 3	3
Brass, 8		Lisbon, 10	10			Leghorn, 6	1
Buguma, 90		Luca, 311	1	Sodium Baborate—		Madras, 5	
C. C. Castle, 80		Macassar, 500	44	Genoa, 110 cs.		Yokohama, 5	
Conakry, 40		Malta, 60	44	New York, 12 brls.		Waste Salt—	
Esquimaux, 150		Menada, 100	3	Stockholm, 10 cks.		Bangkok, 1 t.	
Gd. Bassam, 25		Montreal, 100	3	Antwerp, 20	20 pkgs.	B. Ayres, 10 brls.	
Manaos, 28	11	Nassau, 13	50	Callao, 20	72	White Lead—	
Montreal, 500		Pt. Elizabeth, 104	5	Hamburg, 7		St. John's, Nfld., 4 cks.	
Newport News, 65		Pt. Natal, 1,347	200	Valencia, 7		Whiting—	
New York, 18		Para, 200	16	Sodium Bicarbonate—		Maranhm, 10 cks.	
Para, 206		Rotterdam, 100	16	Adelaide, 90 kgs.		Halifax, 20 bgs.	
Rio de Janeiro, 250 cs		St. John's, Nfld., 85	50	Alicante, 14		S. John's, Nfld., 20 brls.	
Rotterdam, 620		Salt Pond, 50	6	Antwerp, 30	27 cks.	Valparaiso, 60	
Salt Pond, 47	10	San Fernando, 400	65	Bari, 80		Corfu, 6	
San Francisco, 112		Shanghai, 400	6	Boston, 100		Zinc Chloride—	
Sierra Leone, 199	16	Smyrna, 50	65	Constantinople, 20		Montreal, 12 c. 3 q. £8	
Singapore, 300		Stockholm, 50	1	Copenhagen, 20	16	Bombay, 2 t. 17 1 42	
Akassa, 100		Sydney, 2	6	Hamburg, 117	21 3 brls	Zinc Oxide—	
Barbadoes, 100		Sydney, 2	6	Havre, 170		Rotterdam, 16 brls.	
Bonny, 27	5	Sydney, 2	6	Kobe, 1,000		Zinc White—	
C. C. Castle, 25		Teneriffe, 60	1	Kingston, Jam., 40		New York, 12 kgs.	
Cape Town, 25		Ternati, 500	6	Kurrachee, 407			
Copenhagen, 1,830		Trinidad, 200	1	Montreal, 720			
Halifax, 110		Venice, 6	1	Newfairwater, 200	50 bgs.		
Kingston, Jam., 4	10	Antigua, 65	1	New York, 117	100 10 brls.		
Lagos, 99	11	Attaboe, 66	1	Odessa, 60			
Madreira, 10		Bayin, 33	1	Rotterdam, 40			
Monrovia, 24		Carthagena, N.G., 6	1	S. John's, N.B., 150			
N. Orleans, 515	7	Corfu, 6	1	Sydney, 100			
Noqui, 15		Demerara, 3,550	4	Vera Cruz, 375	4 70 bgs.		
Pt. Natal, 686		Dominica, 40	10	Bombay, 375	10		
Pt. Royal, 1,500		Dry Harbour, 100	5	B. Ayres, 20			
Sherbro, 50		Durham, 25	5	Calcutta, 20			
Sydney, 197	2	Madras, 50	5	Genoa, 75			
Calcutta, 6,133		Vera Cruz, 202	5	Gutjewski, 450			
Charlotte Town, 699	17			Malta, 20			
Demerara, 44	10			Marseilles, 70			
Ghent, 50				Melbourne, 250			
Hamburg, 5				M. Video, 100			
Iquique, 60				Philadelphia, 200			
Mobile, 500				Rouen, 60	2		
Old Calabar, 36				Santander, 100			
Sierra Leone, 400				Stettin, 15	2 brls.		
Valparaiso, 105				Vigo, 8	8		
Salt Cake—				Ibrail, 20			
Philadelphia, 60 t. 12 c.	£120			Malta, 2			
New York, 200	10 149			Sodium Carbonate—			
Antwerp, 50	2 101			New York, 112 brls.			
Saltpetre—				Sodium Chlorate—			
Ceara, 6 c.	£7			New York, 150 kgs.			
Corinto, 4	5			Rotterdam, 17			
Rio de Janeiro, 3 t. 2	73			Antwerp, 10			
Sheep Dip—				Hamburg, 55			
Punta Arenas, 100 cs. 11 t. 7 c.	£330			Rio de Janeiro, 4			
Rangoon, 25	27			Boston, 50			
Calcutta, 3 cks. 37 dms.	30			Sodium Hyposulphite—			
Smyrna, 3 t. 8 c. 1 q.	119			Genoa, 15 kgs. 3 brls.			
B. Ayres, 10	330			Sodium Prussiate—			
Soap—				Boston, 10 cks.			
Accra, 250 bxs.				Sodium Silicate			
Addah, 50				Bilbao, 35 brls.			
Algoa Bay, 2,060	70 cs.			Sodium Stannate—			
Appam, 150				Montreal, 2 cks.			
Assinee, 50				Sodium Sulphate			
Axim, 80				Odessa, 10 cks.			
Barbadoes, 1,175				Boston, 28			
Bathurst, 160				Lisbon, 20			
Belize, 2,600	7			Spent Oxide—			
Bombay, 1,340	2 12 cks.			Antwerp, 321 t.	£310		
Bonny, 250				Stearine—			
B. Ayres, 2				New York, 80 bgs.			
Buguma, 112				Pernambuco, 20 cks.			
Calcutta, 18	300 bds.			Strontia—			
C. C. Castle, 130				Bremen, 40 t. 7 c.	£500		
Cape Town, 3,100				Hamburg, 2 4	20		
Curacao, 185				Sulphur—			
Delagoa Bay, 520				Rio de Janeiro, 10 c. 3 q.	£3		
Durban, 100				Cardenas, 1 t. 10 9			
E. London, 3,127	45			Boston, 400	7 1,304		
Gibraltar, 721	20			Superphosphate—			
Gd. Canary, 495				Seville, 7 t. 6 c.	£21		
Havre, 450				Bordeaux, 59	1 128		
Kingston, Ja., 2,547	2			Tartaric Acid—			
Kurrachee, 1,308	10			New York, 2 c. 2 q.	£15		
Lome, 40				Vigo, 10	10		
Manaos, 550				Havana, 71			
Montego Bay, 75				Turpentine—			
Morant Bay, 25				Bathurst, 6 dms.			
New York, 1,367	96			Cavite, 50			
Opobo, 1,120				Lagos, 25			
Penang, 208				Calcutta, 100			
Philadelphia, 15 cks.				Yarnish—			
Rangoon, 750				Bilbao, 2 cs.			
St. John's, N.B., 280				Malta, 2			
Sherbro, 100				Para, 2	6 dms.		
Singapore, 2,700				Rio de Janeiro, 2	6 bls.		
Alexandria, 600				S. John's, Nfld., 3			
Antwerp, 50				Corfu, 1			
Bermuda, 50				Rangoon, 3			
Cairo, 5							
Callao, 13							
Colon, 100							
Constantinople, 2							

Borax —		
Stettin,	10 cks.	
Caoutchouc —		
Aalesund,	1 cs.	
Caustic Soda —		
Abo,	1 ck.	
Bergen,	4 dms.	
Dunkirk,	32	
Helsingfors,	14	
Lisau,	35	
Riga,	20	490
Stettin,	65	
Wyburg,	5	
Chemicals (otherwise undescribed)		
Amsterdam,	100 kgs.	
Abo,	70 pkgs.	
Bordeaux,	10 cs.	
Bergen,	5	
Christiania,	27 cks.	6 782 slbs.
Gothenburg,	4	231 45
Hamburg,	1	110
Helsingfors,	9	
Lisau,	5	275 kgs.
Marseilles,	16	
New York,	50	
Odessa,	68	
Riga,	33	100
Rotterdam,	1	10
Stettin,	360	110
Wasa,	11	
Wyburg,	8 cs.	
Cottonseed Oil —		
Christiania,	18 c.	
Hamburg,	441	
Rotterdam,	689	
Stettin,	10	
Dyestuffs (otherwise undescribed)		
Christiania,	112 bgs.	
Gothenburg,	1 ck.	
Hamburg,	2	
St. Petersburg,	1 cs.	
Stettin,	417	6
Guano —		
Dunkirk,	50 t.	
Linseed Oil —		
Bordeaux,	35 c.	
Bergen,	144	
Christiania,	614	
Constantinople,	33	
Drontheim,	144	
Dunkirk,	20	
Hamburg,	89	
Stavanger,	63	
Stettin,	10	
Manure —		
Rouen,	25 t.	
Naphthaline —		
Riga,	50 bls.	
Nickel —		
Gothenburg,	2 cks.	
Painters' Colours —		
Antwerp,	57 cks. 2 pks. 15 dms.	
Abo,	1 cs.	
Amsterdam,	20	
Bordeaux,	5	
Bergen,	1	24 205 1
Christiania,	75	4 1
Gothenburg,	9	4 1
Ghent,	5	108 5
Helsingfors,	14	
Leghorn,	12	
Marseilles,	120	20
New York,	1	
Rouen,	8	
Rotterdam,	50	1
St. Petersburg,	7	
Stettin,	2	4
Wasa,	2	
Pitch —		
Antwerp,	60 t.	
Helsingfors,	20 cks.	
New York,	235 bls.	
Soap —		
Antwerp,	10 cs.	
Bergen,	85	
Tallow —		
Christiania,	1 ck.	
Tar —		
Bremen,	3 cks.	
Helsingfors,	80	
Rotterdam,	2	
Varnish —		
Antwerp,	1 dm.	
Bordeaux,	3 brls.	
Genoa,	3 cs. 2 cks.	
Gothenburg,	8	3 2
Leghorn,	3	
Marseilles,	3	
Naples,	6	

GLASGOW.

Week ending October 4th.

Ammonium Carbonate —		
Bombay,	1 t. 4 c.	£39
Ammonium Sulphate —		
Spain,	98 t. 15½ c.	£1,352
Bordeaux,	15	2¼
Demerara,	345	195
Rouen,	35	4
Bleaching Powder —		
Bombay,	5 t. 11½ c.	£68
Borax —		
Canada,	13 t. 7¼ c.	£298
Carbon Bisulphide —		
M. Video,	2 t. 9¼ c.	£43
Coal Products —		
Creosote Oil		
Christiania,	4 cks.	£2
Hamburg,	30 brls.	15
Naphtha		
Rouen,	8 t. 5 c.	£135
Pitch		
New York,	20 t. 7 c.	£30
Norrkoping,	100 brls.	
Trouville,	460	
Tar		
Norrkoping,	500 brls.	£80
Bombay,		
Coal Tar Products (otherwise undescribed)		
Rotterdam,	9 dms.	£65
Dyestuffs —		
Extracts		
Canada,	1 t. 6¼ c.	£39
Spain,	5	19¼
Sumac Extract		
Canada,	3 t. 9 c.	£61. 14s.
Lead Acetate —		
Bombay,	1 t. 12 c.	£38
Linseed Oil —		
Montreal,	8 t. 12¼ c.	£188
Canada,	4	6
Rangoon,	1	5
Cape Colony,	295 glns.	31
Natal,	17	23
Amsterdam,	2 cks.	8
Magnesium Sulphate —		
Bombay,	27 t. 11 c.	£111
Christiania,	2	6
Manure —		
Spain,	150 t. 4 c.	£1,260
Oxalic Acid —		
Rotterdam,	1 ck.	£10
Paint —		
New York,	4 t. 10 c.	£86
Rangoon,	1	158
Cape Colony,	7	10¼
Natal,	2	5¼
Bombay,	1	13½
Painters' Colours —		
Cape Colony,		£25
Bombay,	1 t. 12½ c.	£25. 16s.
Calcutta,		£150
B. W. I.,	6	17
Paraffin Wax —		
Spain,	7 t. 2 c.	£177
Cape Colony,	1	13¼
Antwerp,	3	4½
Christiania,	2	3
Potash Salts —		
Cape Colony,	23 t. 10¼ c.	£2,274
Curacao,	4	1
Potassium Bichromate —		
Spain,	12 t. 12 c.	£500
Montreal,	7	19
Bombay,	4	16
Antwerp,	10	1
Calcutta,	10	24
Rouen,	16	32
Rosin —		
Calcutta,	4 t. 15¼ c.	£21. 10s.
Rosin Oil —		
Rotterdam,	24 brls.	£44
Salt —		
Rangoon,	4 t. 8¼ c.	£27
Saltpetre —		
Cape Colony,	1 t.	£23
Soap —		
Cape Colony,	1 t. 6 c.	£20
W. Indies,	3	15
Bombay,	4	9½
B. W. I.,	1	19¼
Sodium Bichromate —		
Spain,	6 t. 2¼ c.	£202
Montreal,	5	1
Bombay,	1	7
Rouen,	5	5

Sodium Phosphate—

New York,	5 t. 17 c.	£58
Sulphuric Acid —		
Rangoon,	60 t. 11¼ c.	£356
Bombay,	8	7
Sulphur —		
Demerara,	6 t. 10¼ c.	£24
Superphosphate —		
Lisbon,	49 t. 5¼ c.	£170
Tallow —		
Hamburg,	7½ c.	£2. 9s.
Turpentine —		
Rangoon,		£20
Varnish —		
Cape Colony,	60 glns.	£22
White Lead —		
Spain,	5 t. 5 c.	£56
Rangoon,	3	28
Cape Colony,	9	10
Natal,	4	8
Bombay,	8	8
Calcutta,	2	5

TYNE.

Week ending September 29th.

Alkali —		
St. Petersburg,	14 t. 15 c.	
Riga,	55	2
Copenhagen,	5	15
Amsterdam,	40	3
Alum —		
Rotterdam,	9 t. 19 c.	
Seville,	2	
Ammonia —		
Pomaron,	9 c.	
Ammonium Carbonate —		
Copenhagen,	5 c.	
Ammonium Sulphate —		
Odense,	2 t. 10 c.	
Antimony —		
Hamburg,	11 t. 10 c.	
Montreal,	2	
St. Petersburg,	15	
New York,	15	
Arsenic —		
Hamburg,	4 t. 17 c.	
Barytes —		
Dunkirk,	5 t. 1 c.	
Barytes Carbonate —		
St. Petersburg,	65 t.	
Rotterdam,	50	
Riga,	25	7 c.
New York,	51	15
Rouen,	65	
Blanc Fixe —		
Montreal,	7 t. 17 c.	
Bleaching Powder —		
Antwerp,	34 t. 5 c.	
Hamburg,	90	17
Danzig,	29	19
Newfairwater,	45	9
Christiania,	16	12
Rotterdam,	32	18
Riga,	24	16
Ghent,	5	10
Copenhagen,	2	2
Lisbon,	15	10
St. Petersburg,	599	4
Drontheim,	10	1
Amsterdam,	110	6
Genoa,	5	1
New York,	50	5
Gothenburg,	1	
Norrkoping,	25	1
Castor Oil —		
Christiania,	9 c.	
Caustic Soda —		
Antwerp,	7 t. 19 c.	
Hamburg,	31	13
Newfairwater,	75	8
Christiania,	7	16
Odessa,	16	18
Riga,	40	6
Copenhagen,	4	18
Lisbon,	4	18
Genoa,	26	19
New York,	87	1
Rouen,	3	9
Seville,	46	9
Norrkoping,	4	18
Copperas —		
Rotterdam,	2 t. 12 c.	
Aarhuus,	1	17
Litharge —		
Riga,	25 t. 8 c.	
Copenhagen,	1	1
Gothenburg,	2	15
Lisbon,	1	6

Amsterdam,	1	2
Montreal,	10	
Magnesia —		
Antwerp,	5 c.	
Hamburg,	5	
Lisbon,	5	
Rouen,	8	
Magnesium Carbonate —		
Seville,	1 t.	
Manure —		
Pomaron,	10 t.	
Naphtha —		
Pomaron,	5 t. 13 c.	
Paint —		
Antwerp,	2 c.	
Hamburg,	¼	
Pitch —		
Ergasteria,	60 t. 3 c.	
Potassium Bichromate —		
Copenhagen,	8 c.	
Salammoniac —		
Genoa,	10 c.	
Slag —		
Rotterdam,	244 t.	
Soap —		
Pomaron,	3 c.	
Soda —		
Drontheim,	107 t. 19 c.	
Christiania,	5	
Randers,	10	
St. Petersburg,	15	3
Montreal,	30	
Constantinople,	4	15
Rotterdam,	20	
Ghent,	5	
Amsterdam,	30	
Pomaron,	1	19
New York,	293	4
Seville,	1	12
Norrkoping,	29	7
Soda Ash —		
Lisbon,	23 t. 15 c.	
Sodium Silicate —		
Hamburg,	3 t. 2 c.	
Seville,	5	4
Sodium Sulphate —		
Helgenas,	370 t.	
Odense,	2	13
Sulphur —		
Christiania,	50 t.	
Riga,	15	
Ghent,	5	
Amsterdam,	2	10 c.
Superphosphate		
Frederikshavn,	98 t. 4 c.	
Tar —		
Drontheim,	4 t. 15 c.	
Varnish —		
Antwerp,	½ c.	
White Lead —		
Montreal,	15 t. 18 c.	
Copenhagen,	4	6
New York,	5	

GOOLE.

Week ending September 26th.

Benzol —		
Dunkirk,	1 ck.	
Chemicals (otherwise undescribed)		
Boulogne,	2 cks.	
Ghent,	61	
Hamburg,	1	
Coal Products (otherwise undes.) —		
Boulogne,	26 cks. 2 cs.	
Ghent,	1 can.	
Dyestuffs (otherwise undescribed)		
Hamburg,	44 cks.	
Rotterdam,	1	
Manure —		
Boulogne,	179 bgs.	
Dunkirk,	91	
Hamburg,	117	
Rotterdam,	47	

GRIMSBY.

Week ending September 29th.

Chemicals (otherwise undescribed)		
Antwerp,	5 cks.	
Hamburg,	1 cs. 12 brls.	
Coal Products (otherwise undes.) —		
Dieppe,	108 cks.	
Dyestuffs (otherwise undescribed)		
Dieppe,	3 pkgs.	
Manure —		
Esbjerg,	1,528 bgs.	

PRICES CURRENT.

WEDNESDAY, Oct. 10th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/9
Glacial	per cwt.	50/-		
Arsenic S.G., 2000°	per lb.	0	14	6
Fluoric	per lb.	0	0	3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	per lb.	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 1/4
Nitrous	per lb.	0	0	1 1/4
Oxalic	nett	0	0	3 1/4
Phosphoric, 1750°	per lb.	0	1	0
Picric	per lb.	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
(monohydrate)	per lb.	5	10	0
(Pyrites, 168°)	per lb.	3	0	0
(free from arsenic, 145°)	per lb.	1	5	0
Sulphurous (solution) S.G. 1025	per lb.	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	per lb.	0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)	per lb.	5	0	0
Alumina Sulphate (pure)	per lb.	5	0	0
Aluminoferri etc.	per lb.	2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	per lb.	0	1	4
" 880=28° B.	per lb.	0	0	3
" =24° B.	per lb.	0	0	2 1/4
Carbonate	nett	0	0	3 1/4
Muriate	per ton	23	10	0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
Nitrate	per ton	41	0	0
Phosphate	per lb.	0	0	10 1/2
Sulphate (grey) London	per ton	12	10	0
(grey) Hull	per lb.	12	7	6
Aniline Oil (pure)	per lb.	0	0	6
Aniline Salt	per lb.	0	0	5 1/2
Antimony	per ton	33	10	0
(tartar emetic)	per lb.	0	0	9 1/2
(golden sulphide)	per lb.	0	0	10
Barium Chloride	per ton	6	10	0
Carbonate (native)	per lb.	3	10	0
Sulphate (native levigated)	per lb.	45/-	to	75/-
Bleaching Powder, 35 %	nett	7	10	0
Liquor, 7 %	per lb.	3	10	0
Bisulphide of Carbon	per lb.	11	5	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	per ton	17/6	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	per lb.	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	2
Benzol, 90 % nominal	per gallon	0	1	2
50/90	per lb.	0	1	2
Carbolic Acid (crystallised 40°)	per lb.	0	0	5 1/4
(crude 60°)	per gallon	0	1	7
Creosote (ordinary)	per lb.	0	0	2
(filtered for Lucigen light)	per lb.	0	0	2 1/2
Crude Naphtha 30 % @ 120° C.	per lb.	0	0	5 1/2
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	per lb.	1	15	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	3 1/2
Lucigen " and " Wells Oils	per lb.	0	0	2 1/2
Copper	per ton	41	1	3
Sulphate	per lb.	14	15	0
Oxide (copper scales)	per lb.	39	5	0
Glycerine (crude)	per lb.	15	0	0
(distilled S.G. 1250°)	per lb.	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
Sulphide (antimony slag)	per lb.	2	0	0
Lead (sheet) for cash	per lb.	11	0	0
Litharge Flake (ex ship)	per lb.	13	10	0
Acetate (white)	per lb.	25	0	0
brown	per lb.	15	10	0
Carbonat: (white lead) pure	per lb.	17	0	0
Nitrate	per lb.	20	0	0
Lime, Acetate (brown)	per ton	7	5	0
(grey)	per ton	10	15	0
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	10	0
Carbonate	per cwt.	1	17	6
Hydrate	per ton	17	0	0
Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	per ton	17	15	0
Borate	per cwt.	2	15	0
Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	1	10
Naphtha (Wood), Solvent	per lb.	0	3	4
Miscible, 60° O.P.	per lb.	0	3	8
Oils:—				
Cotton-seed	per on	21	5	0
Linseed	per on	22	0	0
Petroleum, American	per gallon	0	0	5 1/4
Stearine	per ton	25	10	0
Phosphorus (yellow)	per lb.	0	2	1
(red)	per lb.	0	2	8
Potassium (metal)	per oz.	0	3	7
Bichromate	per lb.	0	0	4 1/2
Carbonate, 90 % (ex ship)	per ton	16	15	0
Chlorate	per lb.	0	0	5 1/4
Cyanide, 98 %	per lb.	0	2	3
Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0
(Caustic Potash) 75/80 %	per ton	20	0	0
(Caustic Potash) 70/75 %	per ton	19	10	0
Nitrate (refined)	per cwt.	1	2	6
Permanganate	per cwt.	3	2	6
Prussiate Yellow	per lb.	0	0	10 1/4
Sulphate, 90 % (ex ship)	per ton	9	15	0
Muriate, 80 % (do.)	per ton	8	7	6
Silver (metal)	per oz.	0	2	5 1/2
Nitrate	per lb.	0	2	10
Sodium (metal)	per lb.	0	3	0
Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
(Caustic Soda-ash) 48 %	per lb.	4	0	0
(Carb. Soda-ash) 48 %	per lb.	4	0	0
(Alkali) 58 %	per lb.	3	15	0
(Soda Crystals)	per lb.	2	5	0
Acetate (ex-ship)	per lb.	14	15	0
Arseniate, 45 %	per lb.	11	0	0
Chlorate	per lb.	0	0	7 1/4
Borate (Borax)	net, per ton	20	0	0
Bichromate	per lb.	0	0	3 1/4
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	per ton	10	12	6
(74 % Caustic Soda)	per ton	9	12	6
(70 % Caustic Soda)	per ton	8	12	6
(60 % Caustic Soda)	per ton	7	12	6
(60 % Caustic Soda, cream) (f.o.b.)	per ton	7	10	0
Bicarbonate	per lb.	5	12	6
Hyposulphite	per lb.	5	10	0
Manganate, 30 %	per lb.	16	0	0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8	9
Nitrite, 98 %	per ton	29	10	0
Phosphate	per lb.	15	0	0
Silicate (glass)	per ton	5	7	6
(liquid, 100° Tw.)	per lb.	4	5	0
Stannate, 40 %	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	0	17	6
(Glauber's Salts)	per lb.	1	5	0
Sulphide	per lb.	8	10	0
Sulphite	per lb.	5	7	6
Strontium Hydrate, 100 %	per lb.	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7 1/4
Barium, 95 %	per lb.	0	0	5
Potassium	per lb.	0	0	7 1/2
Sulphur (Flowers)	per ton	7	5	0
(Roll Brimstone)	per ton	5	5	0
Brimstone: Best Quality	per ton	3	15	0
Superphosphate of Lime (26 %)	per ton	2	7	6
Tallow	per lb.	23	10	0
Tin Crystals	per lb.	0	0	6
English Ingots	per lb.	73	10	0
Zinc (Spelter)	per ton	15	5	0
Chloride (solution, 96° Tw.)	per lb.	5	10	0

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Articles, reports, and correspondence on all matters of interest to the Chemical and allied industries, home and foreign, are solicited. Correspondents should condense their matter as much as possible, write on one side only of the paper, and in all cases give their names and addresses, not necessarily for publication. Sketches should be sent on separate sheets.

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CURRENT TOPICS.

HOW IT SHOULD NOT BE DONE.

IT would be hard to imagine a more complete comedy of errors than was enacted in the attempt made last week to hear the summonses brought by the Mersey and Irwell Joint Committee against the Corporation of Salford. The affair was nothing more or less than a fiasco.

The ball was set rolling by the Salford Town Clerk, who applied for yet another adjournment. Adjournments are often unavoidable things, but in this case they have been hindering progress ever since May last, when it was decided to summons the Corporation after much parleying. The delays seem to have arisen owing to the counsel engaged for the Corporation being so eminent that something keeps turning up to render attendance on the day of hearing impossible. Now if the Corporation confessed to having a ticklish case to fight, there could be no objection to repeated adjournments, so as to ensure a fair fight. But it is irritating to a degree to be informed time after time there is not a shadow of doubt but that a full and complete answer will be made to the charges preferred, when the time comes. If the Corporation have such an explicit answer up their sleeves, it should be an easy matter to out with it and confound their enemies. But instead of that they exhibit palpable anxiety to secure counsel of repute, to make a simple statement which, if really what it purports to be, will preclude all chances of a heated hearing.

Taking this view, Mr. Sutton, on behalf of the Joint Committee, strenuously opposed a further adjournment, urging, in addition, that the pollution was of some years' standing, and growing more and more serious.

At this juncture the Stipendiary contributed his share to the comedy by endeavouring to dispose of Mr. Sutton's plea on the ground that if the pollution had been going on for years there could be no urgency now. The logic of this deduction is occult. But such logic seems peculiar to the Bench, from whence it is nothing new for irrelevant deductions to emanate—particularly in cases of this kind.

A sort of three-cornered duel then supervened, in the course of which the Stipendiary settled that an adjournment should be granted. Finding things going contrarily, the representatives of the Joint Committee retired to consult together, with the result that rather than submit to what they appeared to imagine was a defeat, they decided to withdraw the summonses, and in hot haste served a notice on the Corporation under the old 1876 Act.

On reflection, nothing seems more futile than such a step. Virtually the whole *raison d'être* of the Committee's Act of 1892 was the worthlessness of the 1876 Act. When the Committee were piloting the measure through Parliament, their Clerk, in explaining how he had combated the objections raised to the Bill by Mr. Ritchie, said "The principal argument he used was a reference to the difficulty which Salford

had had in carrying out the present law (*i.e.*, the 1876 Act). Salford, he pointed out, had been at work for five or six years, and had found that the existing law was not sufficient to enable them to do much."

In the face of this, instead of persisting under their own Act till a hearing had been achieved, a sudden reversion is made to the machinery of the very Act the Joint Committee's Bill was framed to supersede. And this cumbersome Act is, moreover, to be brought to bear upon Salford, of all bodies, who have had years and years of experience with the measure. If it was not possible to "corner" Salford under the Committee's Act, how on earth can matters be expedited by choosing such an unwieldy weapon as the 1876 Act, seeing that Salford has learnt, by years of bitter experience, how prosecutions under this Act can be burked. This being so, the Corporation must be up to every dodge that is possible, in addition to being acquainted with all the tactics the prosecution will be able to adopt.

The Committee can hardly be said to have jumped from the frying pan into the fire, as, to our mind, they had not even been placed in the frying pan. The fault seems to lie in their having allowed themselves to be "drawn," instead of keeping cool, and consequently their actions have been prompted by pique rather than common sense.

A NEW MOVE IN THE FLASH-POINT CONTROVERSY.

In our columns, this week, an account will be found of an inquest, touching a fatality resulting from the breaking of a lamp, burning mineral oil, to which attention is directed.

Those interested in accomplishing the establishment of a minimum flash-point of 100° F. must prepare to fight their opponents in a fresh way. Since the supporters of the high flash have endeavoured to cultivate public opinion by the aid of common-sense arguments, based on scientific *data*, the partisans of the low-flash movement have adopted coroners' juries as their mouthpiece. The public are inclined to attach importance to the recommendations of such juries, apart from any consideration as to how their recommendations may have been inspired. Now that the officers of the London County Council are going to devote their energies to attending inquests and putting forward such evidence as will lead juries to advocate legislation on lamps and not the oil, the advocates of the latter method must be on the alert. It would not be a very difficult matter to depute a London representative to attend inquests and put a spoke in the wheel of the L.C.C. officers. In the majority of cases the jurymen would then do what most jurymen do when they have to deal with conflicting opinions; they would put their heads together, and, finding they knew very little about the point under discussion, would neglect the point on the ground that it was merely a side issue, and decide that they had better say nothing about it. It would be far better if they did so, instead of committing themselves to such an illogical recommendation as we record this week. The same method might with advantage be pursued in the provinces. At a recent inquest held in Manchester, we are informed, an oil dealer was allowed to convince the jury of the safety of the oil burnt at the time of the accident by plunging a lighted match into it. It was a pity no one was present to astonish the jury by putting a lighted match to a piece of coal, and telling them they would thus see that, because the coal did not ignite, a fire lighted on the wooden floor of a room could not burn a house down. *This would have necessitated pushing the experiments a step*

further—by heating in two closed cups, some of the oil to which the lighted match test was applied and a high flash-oil, till they both reached a temperature approaching that attained by oil burning in an ordinary cheap lamp, and then once more applying a lighted match. We have not the slightest doubt but that the result would have thoroughly nonplussed and disillusioned the jury.

It was admitted by the L.C.C. officials that accidents were very frequent, but by way of extenuation they stated "the whole of the mishaps might easily be prevented by paying a little more for a lamp." We thought that the whole front of our offending in advocating a high flash oil was the increased cost to the poor consumers. If the poor are to "pay a little more for a lamp," why not for the oil at once? We have had a case before us recently where oil flashing at 73°F. was being retailed at 7½d. per gallon. By taking the trouble to enquire further afield, an oil flashing at 126°F. was obtained for 8d. per gallon, delivered free.

There is one consolation, however, about this latest move in favour of lamp legislation. The more its backers talk, the deeper they implicate themselves. "Safety in the use of petroleum as an illuminant lay mainly in having a metal reservoir, and the vapour which accumulated in that vessel shut off from the burner." Such were the words of the chief officer who administers the Petroleum Acts for the L.C.C. Now, if that is the *ultima thule* of safety according to this authority, is it not a commonsense argument to contend that you can actually get behind this erroneous ultimatum by having *no vapour at all* in the reservoir, to be kept away from the burner? The 100 degrees-flash oil accomplishes this, and that is why scientists advocate its use. But the public do not seem to see it. And the jury in question could not, so they illogically commended lamp legislation in their hapless ignorance.

THE THIRLMERE WATER SUPPLY.

Manchester has always been fortunate in having a good water supply. Good, that is to say, for manufacturing, domestic and dietetic purposes alike. The only cause for complaint was the volume. Scarcity of water has caused inconvenience in that city on more occasions than one, but any chance of such inconveniences being experienced again has become a matter of the past. Two and a half millions of money may be considered a great sum to spend on augmenting the water supply, but when we take into consideration the hygienic importance of pure water and plenty of it, to a large city like Manchester, in conjunction with the fact that the supply is now capable of being increased from 25,000,000 to 75,000,000 gallons per day, it would be a bold assertion to say the money had not been well spent. Moreover, while the amount of the supply has been so handsomely supplemented, the quality of the water has been also greatly improved. The water which is obtained from the original Woodhead gathering ground is good water, and in many respects superior to the supply of the Metropolis; but that which is now derived from Thirlmere is better still, not only on one or two points, but as an all-round water. Taking into account the mineral residue, the total solids, free and albuminoid ammonia, and the hardness, the Thirlmere supply may, without exaggeration, be said to be 50 per cent. better all round than the water from Woodhead. Mancunians are, therefore, greatly to be congratulated on having secured such an important factor in the sanitary well-being of their city.

MANUFACTURE OF AMMONIUM CARBONATE IN N.S.W.—The first carbonate of ammonium manufactured in New South Wales was turned out of the condensers by Dr. J. F. Elliott, at Elliott Bros. chemical works, Balmain, on the 1st ult. Samples of the product are to be preserved in the Technological Museum as historical specimens.

Our Book Shelf.

PRESCRIBING AND TREATMENT FOR INFANTS AND CHILDREN. Third Edition. By P. E. Musckett. 334 pp., including index. London: Y. J. Pentland, 1894.

This work contains little that appeals to the chemical trade, beyond being a handy book of reference for some of the remedies which occasionally have to be resorted to in chemical works. It is divided into three parts. The first two comprising dosage and therapeutics, and the treatment of the various diseases are arranged alphabetically in a manner which renders reference easy. The third part consists of recipes and the index. In a work of this kind the index is an important feature, and in this instance is full and complete, with many cross references. The work is got up in a tasteful manner in a convenient pocket form.

UNITED STATES TARIFF, 1894. 547 pp. F. B. Vandergrift and Co., New York. 1894.

This compilation gives an alphabetical list of all articles included in the new Tariff Act, and the duties which are imposed, free list articles being duly designated. In addition to this the text of the new measure is given, so that personal opinions can be formed apart from those which have been arrived at by the compilers. Each article is referred to the paragraph in the law on which its duty has been based. The book contains a great deal of useful information of a secondary nature. The most important item in this connection is a list of articles on which rates of drawback have been fixed by the Secretary of the Treasury as provided by law in conjunction with a full citation of the laws, forms, and regulations pertaining to drawback.

DESCRIPTIVE CATALOGUE OF ESSENTIAL OILS. By F. B. Power. 96 pp. New York: Fritzsche Bros. 1894.

This little work contains a list of the various essential oils. The first part consists of a list of those oils recognised by the U.S.A. Pharmacopœia, and is arranged alphabetically, the English, German and Pharmacopœic names being given. A brief description of the origin and properties of the more important oils is appended. In the second part, all the non-official essential oils are classed and treated much the same as in Part I. The third and last part is to the chemical trade the most interesting, as it affords a description of some 77 organic chemical preparations which are used as substitutes for the natural essential oils, or which have been extracted from the crude natural product and proved to be the chemical compound to which the characteristic odour is due. In every case the chemical formula of the

preparation is given. Many of these will prove of interest, and possibly value, to the soap makers, to whose notice we can recommend this little work.

FERTILISERS AND FEEDING STUFFS. By B. Dyer. 122 p.p., including Index. London: Crosby, Lockwood and Son, 1894. 1s.

The bulk of this book consists of a collection of articles written by the author which have now been arranged in book form. Its chief claim is that it is not a text book, and that it certainly is not. The advice is practical, and not merely so in the sense that it is based on laboratory experiments and lecture-room observations alone; but in a fuller sense, in that the recommendations are the outcome of several years experience in practical farming. Divided into six chapters and an appendix, the latter forms a very useful portion of the book, containing the full text of the Fertilisers and Feeding Stuffs Act of 1893, with notes by A. J. David, LL.M., as well as the forms and regulations of the Board of Agriculture.

The first chapter deals with the general functions of fertilisers, followed by the usual chapters on farmyard manure and artificial fertilisers, which contain little out of the ordinary; the same ground having been covered by other recent works on manures and manuring. The remaining three chapters, however, merit strong commendation. The application of artificial manures is ably dealt with, but chapter five shows even better handling in the treatment that is accorded the subject of purchased feeding stuffs. The best chapter in the book, however, is the last. The information given on the comparative value of foods is simple, efficient, and thoroughly practical and reliable. There is a double-edged criticism about the author's prefatory remark that the work is not addressed to students of agricultural science but to practical farmers, yet there is no cause to fear but what the thoroughly common-sense and helpful tone which characterises the whole book will alone be quiet sufficient to ensure its appreciation by all who consult its pages for advice, which neither student nor farmer should fail to do.

A. B. C. TARIFF OF AMERICAN, CANADIAN AND INDIAN CUSTOMS DUTIES. 89 pp. London: Neale and Wilkinson, 1894. 2s. net.

This compilation differs from its compeers in giving the Canadian and Indian tariffs in addition to that of the United States. The book contains nothing beyond a bare alphabetical statement of the duties imposed on the several articles, thus being more compact than similar compilations. But it differs from other lists of a similar nature in one important feature. In addition to the list of new duties under the Wilson Bill 1894, the old McKinley rates are given for the purposes of comparison, an addition of great utility, which is not to be found in the majority of recent tariff lists.

THE STANDARD WIRE GAUGE.

The following table constitutes the only legal wire gauge in the United Kingdom. A "Mil." equals the one-thousandth part of an inch. For convenience of comparison the equivalent in millimetres is also given.

No.	Mils.	M.M.	No.	Mils.	M.M.	No.	Mils.	M.M.
0,000,000	500	12.70	13	92	2.34	32	10.8	.274
000,000	464	11.78	14	80	2.03	33	10.0	.254
00,000	432	10.97	15	72	1.83	34	9.2	.234
0,000	400	10.16	16	64	1.63	35	8.4	.213
000	372	9.45	17	56	1.42	36	7.6	.193
00	348	8.84	18	48	1.22	37	6.8	.173
0	324	8.23	19	40	1.016	38	6.0	.152
1	300	7.62	20	36	.914	39	5.2	.132
2	276	7.01	21	32	.813	40	4.8	.122
3	252	6.40	22	28	.711	41	4.4	.112
4	232	5.89	23	24	.610	42	4.0	.102
5	212	5.38	24	22	.559	43	3.6	.0914
6	192	4.88	25	20	.508	44	3.2	.0813
7	176	4.47	26	18	.457	45	2.8	.0711
8	160	4.06	27	16.4	.417	46	2.4	.0610
9	144	3.66	28	14.8	.376	47	2.0	.0508
10	128	3.25	29	13.6	.345	48	1.6	.0406
11	116	2.95	30	12.4	.315	49	1.2	.0305
12	104	2.64	31	11.6	.295	50	1.0	.0254

Official Memoranda.

(From the Board of Trade Journal.)

THE SALT TRADE OF THE SOUDAN.

THERE is no salt in the Soudan, and on account of the difficulties of every kind met with in importing it, this absolute necessary of life becomes very costly in the markets of the interior of Africa, and forms a main object of exchange.

It is stated that at the coast, a somewhat considerable quantity of salt is sold in bags; but the zone which is so supplied is not more than 200 kilometres in length, and can only supply those provinces which lie close to the sea.

Salt, moreover, is apt to dissolve, and even in warehouse suffers from a very sensible depreciation. When it is carried in sacks, on the backs of men or camels, exposed to the weather, to the dangers of the sack being torn, and of many other accidents, to all the chances of loss which such a mode of transport entails, the waste becomes very serious indeed, and as a commercial speculation the transaction proves disastrous. Hence, the central regions are supplied with salt solely from the Sahara.

In the Adrar, the Sebka of Idjil, and at Taodeni, beds of rock-salt are found which, from time immemorial, have been worked by the Moors. This industry is a very primitive one, and consists in cutting out of the deposits, which are about 5 centimetres thick, blocks 1 metre in length and 35 centimetres broad, weighing about 30 or 35 kilos. This is the mode in which is obtained the "bar of salt" so familiar to all travellers who have explored the Soudan. This salt is of very poor quality. Foreign substances, clayey earth, peroxide of iron, bitumen, magnesia, &c., represent nearly 50 per cent. of its weight. Nevertheless it is much sought after.

The products of Sebka of Idjil, carried on camel-back through Tichit and Niore, take the Upper Senegal route, whence they penetrate into the Mandigue countries, Boucé, Ouesfoulou, &c. The salt of Taodeni is also sent on camel-back to Timbuctoo. From that point it follows two routes. After having descended the course of the Niger as far as the falls of Boussah, it is distributed through Libtako and the Haoussa country; or else it ascends the river to Djenné, and from this point radiates through the whole curve of the Niger. Then the turn comes for the slaves and the beasts of burden; a bar of salt, balanced on a man's head, forms his load. An ass carries two bars respectively, fixed on each of his flanks, lengthwise. In this way the merchants are seen crossing the western Soudan, and arriving at Kong, near the coast of Guinea. Now the distance between Taodeni and Kong, through Djenné and Timbuctoo, is not less than 2,000 kilometres.

The price of Sahara salt varies according to the difficulty of procuring it, and according to the route that it has to take. At Timbuctoo, a town relatively close to Taodeni, the kilogram of salt costs about 10d. in English money. It is worth from 1s. 3d. to 1s. 8d. on the Upper Niger. At Kong, according to information supplied by Captain Buige, it fetches 3s. 4d. the kilogram, or £160. the ton. Finally, in certain regions situated at a distance from the deposits, several slaves are frequently given in exchange for a single bar of salt.

The least important of the places where salt is extracted is Sebka of Idjil, from which 20,000 camel-loads are annually sent. The production of Taodeni is four or five times as large. Nevertheless, the demand is far from being met, and where it is met, it is to a very imperfect degree. The excessive distance makes regularity in arrival impossible, and very often the disturbed condition of the provinces which the salt has to cross compromises the trade still more. In many districts, therefore, the population is almost entirely without salt. The people do their best to dispense with it. They substitute for it grains of natural soda, or the potash which they obtain by washing the ashes of certain plants. But if the use of these substances enables them to heighten the flavour of their food, it is deleterious to their health and general economy.

The first aim, then, of those whose desire it is to introduce European salt in sufficient quantities into Central Africa, must be to make it as easy to handle as Sahara salt is. This problem has at last been solved. By certain processes it has been found possible to agglomerate salt in very compact blocks, externally resembling white marble, to which it is proposed to give the form and the dimensions of the Moorish bars of salt, in order to make it as easy to transport them.

By estimating the population of Africa at a minimum of 180 millions, and the annual consumption of salt by each inhabitant at 6 kilos., we see that the market offered by Africa for the importation of salt is more than a million of tons. At the present time the salt trade, which is still in its infancy, is in the hands of the English and the Germans. The port of Liverpool alone exports annually 40,000 tons to the West Coast, while Marseilles exports scarcely 4,000.

THE MINING INDUSTRY OF GERMANY.

Her Majesty's Consul General at Frankfort a/Main, in his commercial report for 1893, states that the amount of coal produced in Germany was 73,908,999 tons (1,000 kilogrammes to the ton) or 3'6 per cent. more than in 1892. The production of common salt has also risen (505,023 tons, against 504,687 tons in 1892), as also of chlorate of potash (137,216 tons against 123,962 tons in 1892) and for the former product somewhat higher prices, whereas for the latter rather lower prices were obtained in 1893 than in the previous year. As regards the products of the foundries, the production of raw iron (4,986,003 tons, against 4,937,461 tons in 1892) and of zinc (142,956 tons, against 139,938 tons) has increased in comparison with the preceding year; on the other hand, that of lead (94,659 tons, against 97,742 tons in 1892), of copper (24,011 tons, against 24,781 tons), of silver (449 tons, against 489 tons), and of gold (3 tons, against 3 tons 8 cwt.), has not come up to the figures of 1892. The prices of all metals have decreased, in some cases even very considerably.

THE SOUTH CAROLINA COTTON-SEED OIL INDUSTRY.

Mr. A. Harkness, Acting British Consul at Charleston, transmits the following information on the subject of the cotton oil industry in the State of South Carolina:—

The cotton-seed oil business in South Carolina is an industry of comparatively recent growth, the first oil mill established in this State having been a small one built near Columbia in 1868, which was not successful owing to the unsettled business conditions generally prevailing at that time. Later on, however, other mills were established, and they have, with few exceptions, proved to be profitable investments. In the year 1867 there were only four cotton-seed oil mills in the United States, but at the present time there are 253 throughout the country, of which number 27 are situated in South Carolina, 24 being owned by local capital, many of the stock holders being farmers. The above-mentioned 27 mills now in this State have a capital of over \$1,000,000. (£200,000. sterling), and last year the Carolina mills crushed about 75,000 tons of cotton seed, valued at \$800,000. (£160,000.), producing 60,000 barrels of oil, 26,000 tons of cotton-seed meal, 5,000 bales of linters, and 25,000 tons of hulls. The oil is mostly sold in northern and western markets, and is much used in the manufacture of compound lard, soaps, and for other purposes.

Part of the shipment to northern markets is exported to foreign countries, and later on some of it comes back to this country under fancy labels as olive oil.

The refined cotton-seed oil appears to be rapidly coming into favour for cooking purposes, either in its natural condition or compounded with other preparations now on the market. It is a sweet and wholesome product—a pure vegetable oil—and is regarded by many persons as being far superior to hog's fat for culinary purposes. The South Carolina farmers also use the cotton-seed meal largely for fertilizer uses, applying it directly to the soil or composting it with acid phosphate. The meal and hulls are also now used by stockmen and dairymen as an article of food for fattening cattle, considerable quantities having been consumed in this manner during the last two or three years.

The cotton oil industry now gives employment to a large number of business men, mechanics, and labourers, most of the latter being negroes.

PETROLEUM PRODUCTION IN ALSACE.

The petroleum industry, although somewhat neglected in Lower Alsace, has recently shown a decided tendency to develop. In 1870 there was only one well working, that of Pechelbroun, near Soultz sous Forêts. This is the most important deposit of Lower Alsace, and the petroleum used to be extracted from the bituminous beds by subterranean galleries. This system has, however, been abandoned, and for some years past wells have been sunk to the required depth to reach the petroleum beds, that is to say, to a depth of about 225 metres. Under this improved system of working excellent results have been obtained and a constant production. In 1892 the latter amounted to 13,000 tons of petroleum, valued at 1,250,000 francs. These results have not failed to attract the attention of speculators, who have been eager to acquire mining concessions. At the present time the actual area of the bituminous territory is estimated at 100,000 hectares (hectare = 2·47 acres).

The petroleum wells of Pechelbroun referred to above, with a product amounting to 90 per cent. of the total production of Lower Alsace, has a special refinery at Soultz sous Forêts, with which it is connected by a railway five kilometres in length.

MR. J. CORTIN.—A new price list of acid valves, taps, unions, non-rotating valves, and similar appliances used for dealing with corrosive chemicals, has recently been issued by Mr. J. Cortin, of Mushroom Quay, Newcastle-on-Tyne, to whom all inquiries should be addressed.

Reports of Companies.

THE LAGUNAS NITRATE COMPANY, LTD.

The first ordinary or statutory meeting of the above company was held on Monday, at Winchester House, Old Broad-street, London, E.C., under the presidency of Colonel North, chairman of the company, who said: Perhaps it will interest you if I tell you what we have been doing since the formation of the company, and before I go any further, I may say, as far as I am concerned, I was never better pleased with any undertaking that I have had in my hands as regards the nitrate business. (Hear, hear.) To begin with, we have received a cablegram from the other side advising us of a further £23,000 due to the Lagunas Syndicate received on account of nitrate; and then, as regards our company, the same cablegram states that £35,000 has been placed to our credit, as the result of the few months' working since we have had the concern. This is very flattering to us. (Hear, hear.) We have only been in working order, you must know, from the 1st July. From that time to the end of September we have made £35,000—(hear, hear)—and this has been done in the face of adverse circumstances. Our new works, you are all aware, took some time before we could get them in working order. The water supply, too, presented a difficulty, but that is all past history. We have sent out fresh pumps, by the aid of which we have doubled our supply. (Hear, hear.) Then, to go a little further, we lately got a message to say that they were making 6,000 quintals a day, equal to 272 tons. On Friday, 12th inst., we got another message, advising us that the sales then amounted to 32,538. And, apart from our large sales, I do not think there is any other nitrate works making nitrate at the price we do. (Hear, hear.) Then we have to contend with a low exchange, which is now only 96 cents. We have accomplished all these things that I have referred to amidst all these troubles, and with only working part of the Laguna. The money was subscribed by you shareholders to enable the company to put up a *maguina* to make 10,000 quintals a day, but the *maguina* we have set up will make 250 more than that. I cannot help feeling that it is very creditable for us to have made £35,000, and if we do not make any more until the end of the year we shall have enough in hand if we wished to give you a dividend of over 20 per cent., but I think we shall only recommend a 15 per cent. dividend to start with. I do not want to raise your hopes too much, gentlemen, and that is why I refer to the 15 per cent. dividend, but I should like to say that it may be 20 per cent.; even that dividend will leave a little over. In the several messages we have had from the property we have first of all learnt that we are making 5,000 quintals a day, then another a little later 6,000 quintals, and then another informs us 7,000 quintals a day is the output. There is no fear of the production being in excess of the demand; in fact, I am afraid we shall not be able to supply the demand. I may tell you, gentlemen, that the consumption of nitrate has doubled in the last ten years. I was at an exhibition the other day given by Sir John Lawes and Sir Henry Gilbert, and they proved to me that sulphate of ammonia would not do for the cultivation of beet-root, as it did not supply the saccharine matter produced by the use of nitrate of soda. Few people know what a big thing this nitrate industry is. For instance, we pay over £2,000,000. a year to the Chilean Government, and besides that we pay another £1,500,000. to the shipping companies. In conclusion, gentlemen, I should just like to say that I am looking forward to giving you an *interim* dividend for the half-year of 10 per cent., and I guarantee that I will give you more than that when we get fairly started. (Hear, hear.) According to telegraphic advices received from Mr. Hicks, the gentleman chosen by the joint boards to arrange the boundaries of the company's grounds, the title has been duly registered and everything arranged satisfactorily. He telegraphs as follows: "Everything is arranged in every way most satisfactorily. Lagunas is worthy of every confidence." (Applause.) I thank you, gentlemen, for your attendance to-day, and as this is only a formal meeting, and there are no resolutions to propose, there is no need for me to detain you further.

Mr. Morrison proposed a vote of thanks to the chairman. He thought it was only due to the gallant colonel that the shareholders should not part without thanking him for the successful manner in which he had interested himself in the company. He was very glad to hear such glowing accounts of their property, but he was prepared for this, as the news he had received from his son, who was engaged on their nitrate works at Lagunas, had given a very favourable account of what was going on in that quarter. (Hear, hear.)

Colonel Church seconded the motion, and it was unanimously accorded.

The Chairman having briefly responded, the proceedings terminated.

THE ALUMINIUM COMPANY, LTD.

Mr. G. W. Balfour, M.P., presiding at the meeting on Wednesday, last week, said that he had hoped they would have a trading profit of £25,000.; they had actually made a profit of between £19,000. and

£20,000. Their trade was a fairly steady one, but it happened that the two months on which he based his estimates showed a somewhat higher profit than the average. Against the profit of £19,456. there had to be set debenture interest, £7,126.; depreciation of plant and machinery, £2,961.; patent charges, travelling expenses, etc., £1,908.; and rent, rates, and taxes, and head office expenses, £1,056. Directors' fees formed an item which appeared in the accounts for the first time for four years. Out of the balance of £4,775. the directors recommend the payment of a dividend of 5 per cent. for the year, leaving £1,775. to be carried forward. In conclusion, he remarked that he had an increasing confidence in the prospects of the company. A dividend of 5 per cent. was then declared.

RIO TINTO COMPANY, LTD.

As is usual at this season, the directors of this company submit a brief interim report on the current year's business of the company. They say the total deliveries of pyrites under present contracts show so far an increase over last year's quantities, and the ore continues of the usual quality. The production of copper in precipitate and regulus at the mines and of refined copper at the company's works in this country continues without interruption.

CULTIVATION OF SUGAR-BEET IN THE UNITED KINGDOM.

[SPECIALLY CONTRIBUTED.]

THE result of the experiments made during the past season upon the cultivation of the sugar-beet in England and Ireland show very satisfactory results. This statement is fully borne out by the tabular statements of the results obtained given below, for which we are indebted to Dr. Gustaf Schack Sommer, by whom the roots grown have been examined.

The standard of comparison adopted is the roots obtained of the well-known Mr. Licht, of Magdeburg, Germany, so that the standard is, if anything, a high one.

The following results were obtained from trials in 14 fields in England situate in the counties of Bedfordshire, Lincolnshire, Suffolk, Essex, Northamptonshire, Middlesex, Oxfordshire, Sussex, and Kent, and from one county in Ireland, namely, County Wexford:—

AVERAGE RESULTS IN ENGLAND AND IRELAND IN 1894.

Details of Analyses.	Average Result of 14 Experimental Fields.	County Wexford.	Compared with F. O. Licht's Magdeburg Results.
Number of Analyses made	33	1	1
Number of Beetroots drawn for Experiment.....	328	11	106
Average weight with Leaves, in grammes	1264	1379	1094
Average weight without Leaves, in grammes	689	740	588
Quantity of Sugar in 100 parts of the Juice	14.18	13.40	14.64
Quotient of Purity in 100 parts of the Juice	83.84	79.75	86.12

The results which have been obtained on the Earl of Winchelsea's farm at Haverholme, Sleaford, have produced even more satisfactory results, which prove that the cultivation of this root can be carried on successfully in this country. It will be noticed in the following figures that the percentage of sugar in the juice from the English-grown roots was in every case higher than in the German-grown roots.

RESULTS OF EARL WINCHELSEA'S EXPERIMENTS.

	Sach's Elite.	Sach's Klein-wanzleben improved.	A. Janasz.	Compared with F.O. Licht, Magdeburg, 1894.
	German.	German.	Russian.	
No. of Beetroots drawn for experiment..	10	10	10	106
Average Weight with leaves, in Grammes	1120	1095	875	1094
" " without leaves, in Grammes	577	654	489	588
Specific Gravity of Juice	1.07618	1.0797	1.07973	1.0700
Degrees by Brix Saccharometer.....	18.40	19.20	19.20	17.00
Quantity of Sugar in 100 parts of the Juice	15.90	16.40	16.70	14.64
" " Non-Sugar in 100 parts of the Juice	2.50	2.80	2.50	3.36
Quotient of Purity in 100 parts of the Juice	86.41	85.42	84.06	86.12

The roots grown from Mr. Sach's seed were well shaped, but those of Russian origin were too bulky. All three kinds, however, compare most favourably with the roots drawn by Mr. Licht, in Germany, in weight as well as saccharine contents and purity.

Correspondence.

* We do not hold ourselves responsible for the opinions expressed by our correspondents.

ELECTROLYTIC CAUSTIC SODA AND CHLORINE.

(To the Editor of the Chemical Trade Journal.)

SIR,—My attention having been called to several articles which have lately appeared in the Technical Press, adversely criticising publications which appeared in the "Times" of the 20th, and "Engineering" of the 28th of September, in reference to a new Electrolytic Process for the production of Caustic and Chlorine, I take this means of replying. Dr. Rideal, in "Lightning," 27th September, prefaces his remarks with the statement that "many of these announcements, made by inventors, are admirable reading, as they nearly all predict the speedy revolution of the alkali industry in this country, and almost invariably emanate from men who are apparently ignorant of the present methods by which the manufacture of soda and bleaching powder are carried on both here and on the Continent." Now, it appears to me, after reading the article in "Lightning," that this statement is equally applicable the other way, and those writing in defence of chemical methods are not quite up to date on the subject of electrolysis. If Dr. Rideal will take the trouble to consult the *Chemical Trade Journal*, October 6th, he will learn how groundless was his assertion in reference to what was being done at Oldbury in the matter of power and quantities treated. After many errors of facts and figures, Dr. Rideal concludes his article by the remark, "but it is quite evident that we have not yet reached finality in dealing with the question of the industrial electrolysis of salt." In the previous sentence, however, he mentions, "at present it is difficult to form any very definite opinion as to the merits or demerits of the new process." Having in addition previously mentioned that "details of this latest departure have not yet been divulged," it would certainly appear that Dr. Rideal's remarks are somewhat contradictory, and he has passed a positive judgment on a matter upon which he confesses to have little or no information.

The writer of the article in the "Electrician," September 28th, takes particular exception to the claim made of an electrical efficiency of 88 to 90 per cent. This is styled as being "one of those illusory allegations which are especially mischievous and tending to injure legitimate electrolytic enterprise." Further on, in referring to the same matter, the statement appears "The time when they (presumably electrolytic processes) shall have driven out their rivals will not be hastened by overstating the advantages of processes for their manufacture." It would appear from the above quotations that the writer in the "Electrician" has affirmed that in claiming an efficiency of 88 to 90 per cent. I have both overstated the advantages of my process and made use of an illusory assertion that tends to injure legitimate electrolytic enterprises.

Now if the writer will take the trouble to learn what electrical efficiency means he will find out that he has made a very serious mistake. Electrical efficiency is determined by the yield per ampere, and in the process referred to it is 88 to 90 per cent., just as I have stated it to be. What the writer in the "Electrician" has done is to get his definitions a little mixed, and in dealing with the question of electrical efficiency he has considered the theoretical electrical energy or decomposition per watt, which is quite a different matter altogether from decomposition per ampere. Here again, however, in dealing with electrical energy he is also in error. By a calculation he has estimated that the voltage is 4.3, whereas it is actually slightly less than 4 volts per cell. Assuming, as must be allowed, that the electro-motive force necessary to decompose a solution of salt into chlorine and caustic is at least 2.3 volts, it is evident that any extra voltage is due to the internal resistance of the cell. As the amount of this internal resistance increases relatively to the quantity or volume of current passing, the whole question resolves itself into one of cell construction, so as to arrange a cell that will be commercially practical, by taking a large current without materially increasing the extra internal resistance. With almost any cell it is quite possible to pass a few amperes at almost the theoretical voltage, but in attempting to increase the volume, in order to obtain a practical result, the resistance increases so rapidly in proportion to the volume of current as to necessitate the use of enormous cells, which at best have but a comparatively small output. If it is theoretically possible to pass one ampere of current through a cell at 2.3 volts, it certainly cannot be said that it is theoretically possible to pass 550 amperes also at the same voltage, yet this is practically the assumption by the writer in the "Electrician" in order to get at his figures, entirely irrespective of what or what is not the technical meaning of electrical efficiency. The question cannot be considered from the single standpoint of the theoretical energy required to perform a certain decomposition, as all cells would show extremely well where a very small current is employed, providing a high electrical efficiency were obtained. The cells at Oldbury have an active anode surface of less than 12 square feet, and take a current of 550 amperes

at four volts, decomposing 56½ lbs. of salt daily, which is equivalent to .48 grammes per watt hour. If the writer in the "Electrician," after having made the statement—"in short, the process in this respect is neither better nor worse than a dozen others that have been brought forward within the past few years"—can quote one of these dozen only, that is capable of yielding even with a cell of four times the size as used at Oldbury the same figures of yield and power employed per cell, there might be some slight justification for his criticism.

From the peculiar style of the article in "Electrical Review" of October 5th, it would not have been a difficult matter to recognise the author even had Mr. Andreoli's name not been attached to it. Mr. Andreoli generally adopts the line of criticism of always knowing of something a little better, and no matter what result may have been claimed, it in no way surprises that gentleman. If Mr. Andreoli could only be induced to make public some of his special knowledge, no doubt this question of the commercial electrolysis of alkali salts would be easily settled. It is impossible to find particular fault with anything Mr. A. has to say, simply because he accepts everything which may be stated, and nothing is either remarkable or surprising to him, but those interested in this subject have heard all this long ago from the same author. Judging, however, by some of Mr. A.'s remarks, one would certainly think the numbers of so-called mercury processes were legion, but as far as I am aware the total number of British patents taken out previous to my own on the subject have been three, or at the most four, and of these none seemed to have possessed sufficient merit to induce a trial beyond a laboratory experiment.

I have devoted much time to the study of this subject, as well as much work, and if there is any process besides my own that is at present capable of producing pure caustic soda, decomposing 56 lbs. of salt per day per cell with an expenditure of 3½ i.h.p., requiring very little attention while running continuously, and with little or no wear to the carbon anodes, I would very much like to learn of it. I confess the knowledge would be a surprise not only to me, but to others, who, having seen my process in operation, believe something like a maximum result has been attained.

The subject of commercial electrolysis, and of the merits of each process in particular, will long remain a good field for newspaper controversy. I prefer to appeal to facts. My process is in operation at the works of the Aluminium Company, Oldbury, and has now become a commercial undertaking, the technical results of which I made public through the columns of *Engineering* and the *Chemical Trade Journal*, if only as being of scientific interest. No amount of writing on the subject will now either make or mar the process, and I am quite content to let its future remain in the hands of my company to determine its commercial success as a rival of the chemical methods.—I am, etc.,

H. V. CASTNER.

THE SALFORD RIVER POLLUTION CASE.

THE adjourned hearing of the six summonses taken out by the Mersey and Irwell Joint Committee against the Salford Corporation, for allowing liquid sewage matter to flow into the river Irwell on six separate occasions in April last, was fixed to come on in the Salford Borough Court on Thursday, 11th inst., before Mr. Makinson, the stipendiary magistrate. Mr. Sutton appeared on behalf of the Joint Committee, and the Town Clerk (Mr. S. Brown) represented the Corporation. The proceedings were taken under Section 3, Part 2, of the Mersey and Irwell Joint Committee Act, 1892. Immediately upon the case being mentioned, the Town Clerk applied for a further adjournment of the case on the ground that the counsel and witnesses on the side of the Corporation were not in attendance. Since the last adjournment he had done his very best to have the summonses heard, but the counsel who had been retained had recently been called out of England, and could not attend earlier than the 17th inst. He had made an application to the Clerk of the County Council for an adjournment, but that gentleman had refused to consent to one. He (Mr. Brown) after this attempted to get his counsel's presence, and wrote to him two or three days ago, but got a reply stating that he could not possibly attend. There was, therefore, no course left for him but to apply for a further adjournment. He had given notice to Mr. Hulton that he had better not attend with his scientific witnesses that day, as he intended to ask for a further adjournment, and that was the application he now made. If it would be any satisfaction to Mr. Sutton he might say that he had not a shadow of doubt but that he had a complete answer in respect to the summonses.

Mr. Sutton said if there was such a thing as a complete answer, one would have thought it would have been easy to give it. The Joint Committee most strenuously opposed the application. The Salford Corporation for years, he said, had been pouring the most foul effluent into the Irwell. Since 1891 it had been admitted that the effluent was of the foulest description; for four years the Corporation had been trying experiments, and correspondence had taken place between the

County Council, the Joint Committee, and the Salford Council upon the matter. It had been admitted that the effluent was what it ought not to be.

The Town Clerk: Who admits it?

Mr. Sutton said that was admitted, and it had become absolutely necessary for the Joint Committee to take proceedings against the Corporation to enforce the purification of the river.

The Town Clerk: I entirely dissent from what Mr. Sutton is saying.

Mr. Sutton: I daresay, but I have got a letter here admitting that the effluent is of a polluting character.

The Town Clerk: But you said it was of the foulest description.

Mr. Sutton: And I repeat it.

The Stipendiary Magistrate: Well, I won't go into the merits of the matter now. If, as Mr. Sutton says, this has been going on for years, there is no very special urgency.

Mr. Sutton said the longer it went on the more urgent it became; it was a matter of daily increasing urgency, because things had changed and the pollution had become more serious. The completion of the Ship Canal had altered the conditions.

In reply to further observations from the Bench, Mr. Sutton said the second adjournment was made on a promise that the Corporation was about to apply to the Local Government Board for power to borrow money for a filtration scheme. The Town Clerk fixed the 11th October as a date convenient to himself, and the Joint Committee had made every preparation in the way of getting their witnesses ready and otherwise. And on the 8th of October, only three days before the date fixed—although there was plenty of time to engage other counsel if the eminent counsel failed—they were told that the case must be further adjourned. They complained of this dilatory work, which was a great disadvantage not only to the gentlemen concerned but to the public, as the pollution was still going on. Even now there was no assurance given that the proposed filtration scheme was being proceeded with.

The Stipendiary Magistrate said he was going to grant an adjournment, and it was for the parties to say whether they would arrange a date or whether he would fix one.

Mr. Sutton said that in that case he must ask that the costs which had been incurred should be paid by the Corporation.

The Stipendiary Magistrate was understood to say that if it was desired he would give a reason for not granting costs.

Mr. Sutton asked permission to withdraw to consider what course the Joint Committee must take, and the Court approving he withdrew in company with the officials of the Joint Committee and the witnesses.

Five minutes later they returned into court.

Mr. Sutton (addressing the Bench) said: In this matter we feel that we have a public duty to perform, and I must enter a most emphatic protest against the course that has been taken in this court.

The Stipendiary Magistrate: You need not go into that. I have decided already that an adjournment shall be granted.

Mr. Sutton: Yes, I understand; but I am now making a protest, as I have a right to do.

The Stipendiary Magistrate: The case has been adjourned. I now ask you to fix the date.

Mr. Sutton: There is another course open to us.

The Stipendiary Magistrate: You may take that course, then, without explanation.

Mr. Sutton: No, we are entitled to give an explanation. The adjournment was formally granted on the understanding that a scheme was proposed.

The Stipendiary Magistrate: I am not going into that.

Mr. Sutton: Well, we feel we must take the case—

The Town Clerk: Well, take your own course without going into all this.

Mr. Sutton: We feel we must take the case to a tribunal where there will be none of these dilatory proceedings allowed. The Corporation have for years been turning the most foul effluent into the river.

The Town Clerk: We deny that emphatically.

Mr. Sutton: And they are now—

The Stipendiary Magistrate (interrupting): This court is adjourned now until to-morrow.

Mr. Sutton: We withdraw our summonses.

Mr. Sutton then gathered his papers together and with his witnesses and the officials of the Joint Committee left the court.

The Mersey and Irwell Joint Committee on the afternoon of the same day served the Town Clerk with notice of proceedings under the Rivers Pollution Prevention Act, 1876, and the case will be heard as soon as possible before His Honour Judge Parry.

THE STATE OF THE CHEMICAL TRADES.

GLASS Makers in the Tyne and Wear district are but moderately employed. The chemical trade is slightly improved, though short time is still being worked. The white lead and cement works are also quiet. In the neighbourhood of Burnley and Accrington the calico printing and dyeing trades are better. A new bleach works has opened near Ramsbottom. Nothing definite has transpired as yet about the proposed Calico Printers and Dyers' Syndicate. The salt and chemical trades about Northwich are without change. At St. Helens and Widnes the chemical trade shows slight improvement, but glass workers and makers are very quiet. The Barrow paper and pulp makers continue busy. There are still signs of satisfactory activity in the salt trade at Middlesbrough. Seed crushers in the Hull district are busier, but employment is irregular. There is less doing in the paint, oil, colour and varnish trades. These trades are in a rather better state in the Wolverhampton district, and employment is steady. The glass trade in this district has also improved. South Staffordshire galvanisers and enamellers are busier than they have been for a long while. In Derbyshire, also, papermakers and dyers are well employed. About Bristol the chemical trade is slack. The same may be said for the Cardiff district, where short time prevails. The patent fuel trade, however, is brisk.

Trade Notes.

REDUCTION IN WOOD PULP PRODUCTION.—At the last meeting of the Scandinavian Wood Pulp Union, at Gothenburg, which was very well attended, it was decided to reduce the output 10 per cent., and that this reduction should be carried out during the first quarter of 1895. It was also agreed that the question of a further reduction should be discussed at the February meeting of the union.

SEALING BOTTLES AND CANS BY ELECTRICITY.—Electricity is now applied in France to seal up bottles of wine, beer, and chemicals with a metallic coating or capsule. A conductive layer is former on the mouth of the bottle, and the metal coating is deposited on it by the ordinary methods of electro-plating. It is proposed to apply the process in sealing cans of fruit and preserved meats.

EIGHT HOURS IN THE ALKALI TRADE.—Mr. Brunner, M.P., of Messrs. Brunner, Mond and Co., has been addressing his Northwich constituents on the eight hours day, as in operation at the firm's works at Winnington. In November, 1889, the change was made, with a fall of 10 per cent. in wages. In January, 1891, the reduction in wages was abandoned. After four years' experience of the eight hours system it was found, with regard to the wages per ton of products, that the men got the same wages for eight hours as they formerly did for 12 hours, but the cost per ton in wages was not more than in 1889. He believed that a considerable part of the improvement was due to the greater efficiency of the men and a considerable part to improvement in the plant. In the quarter beginning July, 1889, the percentage of men receiving sick pay was seven—that was to say, seven men in every 100 were on the club. In 1893, in the corresponding quarter, the percentage of those who received sick pay was only five. In 1889, in the same quarter, the number who were attended by the doctor equalled 10 in every 100, while in 1893 it was only five per cent. That was a reduction of 50 per cent.

THE LAMP AGAIN.—An inquest has been held at St. Pancras touching the death of E. Cozens, aged 58, who was burnt fatally through the breaking of a petroleum lamp. Mr. Spencer, chief officer, and Mr. Gibbon, inspector, under the Petroleum Acts, were present from the London County Council. Joseph Cozens, a son of the deceased woman, deposed that his mother was searching with one hand in a cupboard for a bottle and holding a paraffin lamp with a glass reservoir in the other hand, when a pot fell from the top shelf and smashed the lamp. The oil caught fire and ignited her clothing, and before he could extinguish the flames she was severely burned. He succeeded at last in putting out the fire, burning his hands in doing so, and his mother was then taken to the North-West London Hospital, where she died. Dr. Beaton having stated that death was due to the extensive injuries, Mr. Spencer said that lamps like the one in question with fragile reservoirs and insecure burners, were liable to accident at any moment. Many thousands of similar lamps were in daily use in the Metropolis, and accidents, although happily not all fatal, were very frequent. The whole of those mishaps might easily be prevented by paying a little more for a lamp. Safety in the use of petroleum as an illuminant lay mainly in having a metal reservoir and the vapour which accumulated in that vessel shut off from the burner. The jury returned a verdict of "Accidental death," and added a rider recommending legislation with the view of checking, if not wholly preventing, the evil results of the great sale of fragile and dangerous paraffin lamps. Oh, wise and learned jury! Wherefore the lamp more than the glass.

BISMUTH IN MICHIGAN.—According to recent advice which has been sent from the United States, the metallurgical resources of Michigan have been augmented by the discovery of the metal bismuth.

SALES OF CHILIAN NITRATE GROUNDS.—The sales of the Government nitrate grounds, on Monday, realised £1,080,000. sterling, thirteen lots, valued at over one million sterling, remaining unsold. Thirty lots were sold altogether, and they realised £187,000. more than the official valuation. The amount of Chilean capital invested is £420,000.

CHEMICAL TRAFFIC ON THE SHIP CANAL.—During last week several vessels used the Canal for the transit of chemical raw materials. The "Twilight," from Stettin to Manchester, brought wood pulp. The "Fowey," to Ellesmere Port, brought a cargo of china clay. The "Caradoc," from Kotka to Manchester, brought wood pulp; and the "Dhoon Glen" left Runcorn for Sligo with a cargo of salt.

SITE OF THE NEW CORDITE FACTORY.—The War Office authorities are arranging for a site on which a new cordite factory can be erected in accordance with the recommendations of Lord Sandhurst's Committee. Two sites are under consideration, one in South Wales and the other on a common about two miles from Waltham Abbey. The latter site is close to the Lea navigation, which would place it in direct connection with the Thames and the Arsenal at Woolwich.

PROPOSED DEEPENING OF THE RIVER IRWELL.—The Corporations of Manchester and Salford have at present under consideration the question of deepening the River Irwell. It is proposed to deepen the river from the Ship Canal to St. Simon-street, near Broughton Bridge. In this way it is hoped to make it increasingly useful for the purposes of navigation, and the greater depth will also be the means of helping to carry off flood water, by the overflow of which so much damage has been done to property on the river banks from time to time during past years.

HOW FOODS AND MEDICINES ARE ADULTERATED.—In his report to the West Riding County Council, Mr. A. H. Allen cites cases submitted to him for analysis of castor oil pills destitute of castor oil, of scidlitz powders not in accordance with the British pharmacopoeia, of tincture of rhubarb deficient in alcohol and extractive matter, of sweet spirit of nitre almost deficient in nitrous ether, ground ginger with five per cent. of sand and extraneous matter, coffee with 80 per cent. of chicory, etc. Food and drink samples submitted show in many instances similar results, and in all such cases fines had been inflicted.

THE CHESHIRE SALT TRADE.—During the past month the shipments of salt were comparatively small, the tonnage being 41,261 tons, or just 100 tons more than in the corresponding period of last year. The transactions so far this year compare favourably with those of several preceding years, the figures standing at 503,899 tons, a larger weight than since 1891, when the figures stood 504,841. A considerable improvement was shown in the shipments to the United States, both north and south. The shipments of white salt from Liverpool during the month were 33,247 tons, from Runcorn 3,654, and Weston Point 4,360 tons; total, 41,261 tons. The rock salt tonnage was: Liverpool, 2,317; Runcorn, 158; and Weston Point, 532; total, 3,007 tons.

TWO MORE PARAFFIN LAMP ACCIDENTS.—Last week an elderly lady named Elizabeth Howard, residing at Ellison-street, Jarrow, died from injuries received from a lamp explosion. It appears that she attempted to turn the light out prior to going to bed, and turned the wick so low that it fell into the oil, causing an explosion. Her night-dress was set on fire, and she was so terribly burned that she died shortly after.—On October 14th, a fire which resulted in severe personal injuries, occurred through the upsetting of a mineral oil lamp at 12, Kinghorn-street, Cloth-fair, London. The front room on the second floor and the contents were severely damaged by fire, and Jane Mellon, aged 43 years, was severely burned on the body and legs, and had to be removed to St. Bartholomew's Hospital in a precarious condition.

DISCOVERY OF COAL IN LANCASHIRE.—A discovery likely to have an immense influence on the industry of Lancashire was made at the Moss Colliery, Ashton-under-Lyne, on Tuesday, October 9th. For the past 12 months explorations have been carried on with a view to proving the presence of the "Great" and "Roger" rines on the west side of an extensive fault, which two years ago was found to have an upthrow on that side of 415 yards. The Great mine has a thickness of 5ft. 8in. and the Roger 4ft. 8in., and both are excellent house coal, being, in fact, the most valuable of the Lancashire coal measures. The mines are within a depth of 530 yards from the surface, and have a dip towards the Manchester basin of one in three. Assuming the seams to be continuous—and there is every reason to believe they are—the lowest computation gives an addition to the available coal supply of the United Kingdom of between sixty and seventy million tons of coal. The new company, at whose expense the explorations were carried out, commenced actual coal getting on the 8th. During the twelve months nearly 500 yards of tunnelling, 6ft. high and 7ft. 6in. wide, has been made.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is, if anything, a tendency to quietness in tar products. Benzols remain stationary at 1s. 2d. Crude carbolic acid (60%) is a fraction easier at 1s. 6½d., but 40% crystals are unaltered at 5¾d. Crude naphtha is a trifle firmer, and 5¾d. is now again quoted. Solvent, however, is a halfpenny cheaper: to-day's value being 1s. 3d. Creosote and anthracene unchanged. Pitch keeps very firm, quotations f.o.b. East Coast being 40s. to 42s. per ton, prompt, and 38s. to 40s. next year.

There is a slightly steadier tone in sulphate of ammonia, there being rather more disposition on the part of consumers to purchase both for spot and forward. Makers, however, decline to entertain proposals for futures at present values. Nearest quotations are:—Beckton £12 2s 6d., London outside makes £12 5s., Liverpool £12 2s 6d., Hull £12 2s 6d., to £12 5s., and Leith £12 2s 6d.

MISCELLANEOUS CHEMICAL MARKET.

Trade generally continues fairly satisfactory. Bleaching powder steady, and in moderate request at £7 10s., softwoods, rails, makers' works, and £8. hardwoods, f.o.b. Caustic soda remains in good demand, and without change in prices: current quotations are:—77%, f.o.b. Tyne, £10 12s. 6d.; f.o.b. Liverpool, 74%, £9 12s. 6d.; 70%, £8 12s. 6d.; 60%, £7 12s. 6d.; cream, 60%, £7 10s. per ton, in 10-ton lots and upwards. Soda ash of all grades is in somewhat poor request and prices are weak, though nominally unchanged. Soda crystals still offering at low rates, £2. bags, and £2 5s. casks, makers' works, being to-day's quotations. Chlorate of potash dull at 5¾d. per lb. Saltcake offering at tempting prices, without finding buyers. Nitrate of soda quiet with small inquiry: price, £8 17s. 6d. per ton. Litharge is a shade stronger at £13. Acetate of lead moves slowly at £14 10s., c.i.f. Acetates of lime are firm, and prices are likely to advance still further: brown is now quoted £7 per ton, and grey £11. Acetate of soda is without change, but there are signs that the makers are getting tired of the low figures which have now been ruling for some time; some have already stopped its manufacture, and others will doubtless soon follow—an advance may, therefore, be anticipated. Sulphate of copper shows no improvement, and is still selling at £14 10s. to £14 15s., f.o.b. White powdered arsenic is firmly held, though the demand is not so good as it might be: £14 5s. is to-day's quotation at Garston. Borax is difficult to move, and prices are weak. Oxalic acid quiet at 3¾d. Prussiate of potash and soda strong at former prices. Carbolic acid (crude) is a shade easier: 1s. 6½d. for 60's, and 1s. 9d. for 70's being about values to-day. Ammonia salts somewhat scarce, and prices continue strong: £24. for grey, £28. for white, and 3¾d. for lump are to-day's quotations.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Most of the Scotch miners having resumed work (at the masters' terms), the manufacturing outlook is so far simplified, fuel being by this time freely procurable at about the old rate of cheapness. The blast furnaces have been rekindled to a considerable number, and the supply of sulphate of ammonia is therefore in process of being appreciably increased. Meanwhile the article continues under the "bearing" operation, and only nominal values can be hinted at. It is understood that one transaction was done at £12 7s. 6d., but there is practically speaking no buying just now.

Mineral oils and paraffins remain about the most active of the various sections of the market, and in the lower grades of refined solid paraffin (paraffin wax) there has been a fractional increase in price.

In ordinary chemicals there has been, according to report, rather more doing in the shipping department, but as a whole the market is idle. Chlorate of potash is cheaper, but the others are unchanged.

Chief prices current are:—Soda crystals £2. to £2 1s. nett, Tyne; soda ash, 48/52°, £3 17s. 6d. to £4s. 5s. nett, Tyne; white alkali 48/52° £4 10s. to £5 5s. nett, Tyne; alum in lump £5 10s. nett, Glasgow; caustic soda, white, 74° £9 15s., 70/72° £8 12s. 6d., 60/62° £7 12s. 6d.; and cream 60/62° £7 10s., all nett, Liverpool; bleaching powder. £7 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6 10s., and 1 cwt. casks £6 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for

Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 6d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £12. 2s. 6d. to £12. 5s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1½d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d. to 2½d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4½d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 10s. to £3. 15s.; 885° £4. to £5., and 890/895° £4. 5s. to £5. 10s. Week's imports of sugar at Greenock were 5,700 bags refined beet.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, but without much alteration in values. The quotations for 75/80% Florida phosphate rock remain 8½d. per unit, c.i.f. Baltic, 8d. to Continent, and 7¾d. to United Kingdom, 1895 steamer shipment, but we do not hear of any important business at the prices. Hot-air dried South Carolina River rock is worth about 6½d. per unit, and Peace River rock about 6½d. per unit; Algerian offers rather freely at 6½d. up to 7½d. per unit, according to grade, c.i.f. to United Kingdom, shipment over the next twelve months. There is nothing special to report in River Plate bones. Handy cargoes are worth about £4. 11s. 3d., but those of large size would hardly fetch £4. 10s. Crushed Kurrachee bones are selling at £4. 12s. 6d., ex ship Hull or ex quay Liverpool, for shipment. Bombay bone meal for shipment may be had at £4. 13s. 9d., and fine Kurrachee at the same price. Common grinding bones sell readily at £4. 5s. to £4. 7s. 6d., ex quay Liverpool. Nitrate of soda is quiet in all positions: on spot ordinary quality is worth 8s. 10½d., and fine 9s. per cwt. Due cargoes are now hardly worth more than 8s. 9d. per cwt., and later shipments 8s. 10½d. to 9s. 1½d. per cwt., according to position and test.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 5d., Middlesbrough 35s. 5d. cash, and hematite 43s. 3d. Copper, firmer: Chili bars, G.O.B.'s and G.M.B.'s closed at £40. 18s. 9d. to £41. cash, and £41. 6s. 3d. to £41. 11s. 3d. three months. Tin slightly easier, but more active: Straits closed at £69. 10s. to £70. cash, and £69. 15s. to £70. 5s. three months; Australian, £69. 12s. 6d.; English ingots, £72. 10s. Lead, steady: Spanish, £9. 18s. 9d. to £10.; English, £10. to £10. 2s. 6d. Silesian spelter, ordinary, £15. 2s. 6d. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 14s. Copper shares, dull: Cape, 1½ to 1¾; Copiapo, 1¾ to 2; Libiola, 3¼ to 3½; Mason and Barry, 1¾ to 2; Rio Tinto, 14½ to 14¾; Tharsis, 4¾ to 5½.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, with a fairly good inquiry: Accra and New Calabar have been selling at £21., Bonny £21. 10s., and Lagos at £23. 10s., for next month—all transit. Olive continues firm at good prices: quotations ranging from £30. to £38. per tun, according to quality and source. There has not been a great deal doing in linseed, but holders remain steady in their demands for 22s. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed has ruled quiet and easier: sellers are now steady at 20s. 9d. to 21s. 3d. per cwt. for Liverpool refined. Castor oil is on the whole steady: good seconds Calcutta is firmer at 2½d., parcels offering at 2½d. having been cleared; first pressure French is inclined to be steadier at 2½d. per lb. Tallow is steady as regards price, but there is very little business doing. Resin is steady for common, other grades firm. Spirits of turpentine are rather easier at 21s. 3d. per cwt. Petroleum in satisfactory request at 4½d. to 5½d. for American, and 3½d. per gallon for Russian refined.

COLOURS are steady without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15.; Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is very little alteration in prices for prompt. Sulphur scarce at £3. 17s. 6d. per ton; caustic, 76/77%, £10 to £10. 10s.; bleach, £7. 5s. to £7. 10s. per ton; soda crystals, £2. 1s. per ton, gross weight, locally. A fair amount of business doing for spot and forward.

Bleaching Powder, softs, £7. 5s. per ton, nett; hard, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 15s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. 1s. per ton, nett, gross weight; do., 2 cwt. bags, £2. 1s. per ton, nett; chlorate of potash, 7½d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Trade is quiet, and prices tending downwards. Best Northumbrian steam quieter, at 11s. per ton; second qualities, 10s. per ton; small steam plentiful, 4s. 6d. per ton; gas coals steady, 7s. 6d. to 7s. 9d. per ton; bunker coal, unscreened, 7s. to 8s. 6d. per ton; coke, dull, 13s. 6d. to 14s. 6d. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business remains quiet. The principal imports, up to date in 1893 and 1894, have been: Linseed, 441,830 quarters, against 309,765 quarters; rapeseed, 107,290 quarters, against 51,157 quarters; cottonseed, 132,218 tons, against 126,553 tons; olive oil, 17,914 casks, against 8,262 casks; rape oil, 6,208 casks, against 5,589 casks; oilcakes, 14,196 tons, against 15,691 tons; tallow, 20,065 cwt., against 28,052 cwt.; turpentine, 15,195 barrels, against 11,839 barrels; tar, 15,645 barrels, against 9,859 barrels. Linseed oil has been steady during the week, but the tone at the close is easier. Spot offers at 20s. 1½d. naked, and month at 19s. 10½d.; November-December and January-April, 19s. 7½d. to 19s. 6d.; casks, 17s. 6d., and ordinary barrels, 25s. per ton extra; boiled and refined ditto from £1. to £2. per ton extra. Export for the week ending 9th inst., 4,180 cwt. Refined cotton oil has declined about 10s. per ton on the spot, closing quiet at 18s. naked; month, 17s. 10½d. to 17s. 9d.; November-April, 17s. 6d.; crude, 17s. naked, sellers, spot; November-April, 16s. Export of refined for the week, 1,980 cwt. Rape oil remains flat and inactive. During the week there have been imports of 4,970 quarters of rapeseed from Odessa. "Vegaline," the new vegetable fat, perfectly white and neutral, £29. per ton. Castor oil in good demand, at former prices. Olive oil, in barrels, from £32. per tun. Cod oil quiet, £16. to £19. per ton. Sod oil quiet, unchanged. Soft soap, 14s. 6d. per cwt. Boiled drying oil, £12 per ton.

CAKES.—A somewhat steadier tone. Cakes have declined in about the same ratio as English grain, the prices current twelve months ago being higher than present values, as follows:—Linseed cakes, £2.; cotton cakes, £1. 15s.; wheat, £2.; barley, £1. 10s.; oats, £1. 8s., all per ton; so that cakes have already borne their full share in the wholesale decline in values. Linseed cakes, 95%, pure, £6. 12s. 6d. to £6. 17s. 6d.; Russians, £6. 5s. to £6. 15s.; oilcakes, £5. 12s. 6d. Cotton cakes steady: Best makes, £3. 15s., and up to March. Rape cakes unchanged.

PAINTS.—Dry colours: Venetian red, £3. 17s. 6d.; red oxide of iron, £7. to £18.; blue black, £4.; mineral black, £3. 15s.; yellow ochre, £3. 15s. per ton. Paint remover, 30s. per cwt. Red and white lead, also oxide of zinc, unchanged.

New Companies.

J. H. Calvert and Bros., Limited. CAPITAL £30,000. in shares of £10. each. This company has been formed to carry on the business of calico printers, bleachers and dyers, and makers of inks, paints, vitriol, and dyewares. The subscribers to the memorandum of association are:—J. H. Calvert, Spark House, Clayton-le-Moors, calico

printer; W. F. Calvert, The Parks, Bane, calico printer; R. P. Earwaker, Haddon House, Buxton, salesman; J. Barker, 75, Bland-street, Brooks's Bar, Manchester, salesman; H. Clarke, 70, Clifton-street, Old Trafford, cashier; J. H. Calvert, jun., Willow House, Clayton-le-Moors, manager; J. H. Calvert, 20, Pandora-road, N.W., salesman.

Victoria Rubber Company, Limited. CAPITAL £60,000. in 3,000 preference and 3,000 ordinary shares of £10. each, to take over the business of india-rubber manufacturers and waterproofers, now carried on by P. M. Matthew, at Leith and London. The subscribers to the memorandum of association are:—Richard Malcolm, Burnside Ho, Dollar, teacher; A. H. B. Constable, 19, India-street, Edinburgh, advocate; Mr. C. McEwen, 5, St. Andrew-square, Edinburgh, C.A.; Thomas Heath, Royal Observatory Ho, Edinburgh, astronomer; J. M. Somerville Shaw, 18, St. Andrew-square, Edinburgh, stockbroker; N. B. Constable, 61, Frederick-street, Edinburgh, W.S.; J. W. Hunter, Victoria Rubber Mills, Leith, cashier.

Dutrulle and Company, Limited. CAPITAL, £14,000. in shares of £1. each. This company has been formed to acquire the business of P. Dutrulle, as a going concern, and to trade as dealers in herbs, barks, roots, chemicals, and similar products. The subscribers to the memorandum of association are:—P. Dutrulle, 7, Fowkes-buildings, Great Tower-street, E.C., merchant; M. Dutrulle, 27, Orlando-road, Clapham, married woman; E. Lecante, Estienne, Nord, France, manufacturer; A. Faroult, 33, Orlando-road, S.W., gentleman; W. Thomlinson, 31, Calthorpe-street, W.C., gentleman; N. W. Curtis, 7, Romberg-road, S.W., engineer; L. Combe, 6 and 8, Rue Neuve, Popincourt, Paris, accountant.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

T. ALSTON, C. HINDLE, and R. ENTWISTLE, paper, paint, and paper varnish dealers, Bolton, under the style of Alston and Co., as far as regards C. Hindle.
A. H. ALLEN and C. G. MOOR, consulting and analytical chemists and assayers, Leadenhall-street, E.C., under the style of Allen and Moor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Chlorates of Potash and Soda. J. Hargreaves and T. Bird. 18,526. October 1.
Basic Orange-Yellow Colouring Matters. O. Imray. 18,529. October 1.
Extracting Precious Metals from Ores. H. L. Sulman and F. L. Teed. 18,592. October 1.
Folminating Compounds. H. Maxim. 18,682. October 2.
Improved Process of Nitrating Cellulose. R. C. Schuppshaus. 18,683. October 2.
Fuel Saving Compound. A. W. Summers. 18,715. October 3.
Apparatus for Concentrating or Distilling Sulphuric Acid and other Liquids of a High Boiling Point. G. Krell. 18,727. October 3.
Improved Employment of Aluminium Sulphate and other Clarifying Agents for Purifying Sewage. E. W. Adeney and W. K. Parry. 18,765. October 3.
Improvement in Production of Ammonia. W. M. Mackey and J. F. Hutcheson. 18,791. October 4.
Production of Cyanides and Ammonia. W. M. Mackey and J. F. Hutcheson. 18,792. October 4.
Detergent Compounds. R. Armstrong. 18,891. October 5.
Atmospheric Gas Burners. T. Fletcher, W. Russell, and Fletcher, Russell, and Co., Ltd. 18,896. October 5.
A New Explosive. O. Imray. 18,921. October 5.
Triturating and Emulsifying Machine. W. B. Cowan. 18,928. October 5.
Treating Silicates Containing Aluminium. J. Y. Johnson. 18,939. Oct. 5.
Separating Arsenic, Antimony, and Bismuth, etc., from Hydrochloric, Sulphuric, and other Acids, and Apparatus therefor. W. Whitehead and C. Gelstharpe. 18,940. October 5.
Improved Process and Apparatus for Softening Water and Purifying Waste Liquors. H. L. Doulton and A. W. Manger. 18,992. October 6.
Evaporating Silicate of Soda Solutions. J. J. Crosfield and K. E. Markel. 18,998. October 6.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.							
Week ending October 6th.							
Acetic Acid—		E. Indies, 25 cks.	J. Greig	Belgium, 100	T. H. Lee	Farina—	
Holland, 102 pkgs.	Beresford & Co.	Belgium, 50	W. Balchin	U States, 100	Stilbeck Bros.	Germany, 50 pkgs.	J. Knill & Co.
96 A. & M. Zimmermann		Caustic Potash—	Fuerst Bns.	Denmark, 40	McDougall & Bonthron	Holland, 50	T. H. Lee
Alkali—		Belgium, 100 c.	Petri Bns.	France, 45 cks.	Union L. Co.	French Chalk—	
Germany, 2,000 c.	R. Waters	Chemicals (otherwise under)—		Fustic		Austria, £40	W. Harrison & Co
Alum—		Germany, 35 pkgs.	T. H. Lee	Jamaica, 6 t.	J. Hales Caird & Co.	Glucose—	
Belgium, 24 pkgs. £20.	R. W. Greiff & Co.	" 40	A. & M. Zimmermann	Gambier		Germany, 13 pkgs. 106 c.	M. D. Co.
Holland, 9	I. M. Steel & Co.	" 7	Craven & Co.	Germany, 199 pkgs.	S. Figgis & Co.	" 50	404 c. Prop.
30	H. Wallace & Co.	" 67	L. & I. D. Jt. Co.	150	Beresford & Co.	France, 112	112 J. Barber & Co.
Aluminium—		Holland, 15	Pickford & Co.	Indigo		" 100	100 L. Norman & Co. Ltd.
Belgium, £336	Major & Field	" 10	T. H. Lee	Holland, 10 cts.	R. Baelz & Co.	U. States, 800	2,191 R. G. Hall & Co.
Asbestos—		" 4	L. C. & D. Rly. Ltd.	Logwood		" 200	1,210 W. Grose & Co.
Germany, £10	Pickford & Co.	Germany, 5	Phillips & Graves	B. Honduras, 36 t.	W. Shellcott	Infusorial Earth—	
Barytes—		China, 28	A. & M. Zimmermann	Jamaica, 10	Hawthorn, Shelden, & Co.	Germany, £90	Beck & Pollitzer
Belgium, 42 cks.	Leach & Co.	Cream of Tartar—		" 80	Anderson, Weber, & Smith	Magnesium Sulphate—	
" 42	Soundy & Sons	Italy, 22 pkgs.	Howards & Sons	Myrabolams		Germany, 69 cks.	Beiss Bros. & Co.
" 26 100 bgs.	J. L. Lyon & Co.	Holland, 27	Kirkpatrick & Co.	E. Indies, 1,405 pkgs.	A. Hagan	" 133 pkgs.	Berger, Kahler, & Co.
" 24 58 pkgs.	W. Harrison & Co.	Spain, 15	B. & F. Wf. Co.	" 49	Wrightson & Son	Manure—	
" 22	S. H. Willoughby	" 25	W. C. Bacon & Co.	" 327	L. & I. D. Jt. Co.	E. Indies, 704 t.	A. Hunter & Co.
Holland, 115	W. Harrison & Co.	France, 20	B. & F. Wf. Co.	" 460	Hicks, Nash, & Co.	Ichaboe Is., 555	D. de Pass & Co.
Germany, 20	Steinhoff, Sons, & Co.	" 11	F. C. Devon & Co.	" 450	Darling Bros.	Germany, 10	F. W. Berk & Co., Ltd.
Camphor—		" 10	Finlay & Co.	Saffron		S. Russia, 29	J. Burnett & Sons
Germany, 4 pkgs.	L. & I. D. Jt. Co.	" 10	M. Ashby, Ltd.	Spain, 1 pkge.	J. H. Fox & Co.	Methyl Alcohol—	
China, 28	R. Warner & Co., Ltd.	Dextrine—		Shumac		Belgium, 6 bls. 10 cks.	Lister & Biggs
Hong Kong, 113	City Coml. Wf. Ltd.	Germany, 20 pkgs.	M. D. Co.	Italy, 50 pkgs.	H. Johnson & Sons	U. States, 60 brls.	F. A. Quinn
Caoutchouc—		Dyestuffs—		" 100	J. H. Dore & Co.	" 127	J. Kertel
France, 16 c.	Carter, Paterson, & Co.	Annatto		" 1,850	J. Kitchin, Ltd.	Mica—	
Zanzibar, 106	L. & I. D. Jt. Co.	Japan, 12 pkgs.	Eastwood & Holt	" 300	T. E. Scott	E. Indies, £215	W. M. Smith & Sons
U. States, 25	"	Argols		" 300	W. Shelcott	Ochre—	
E. Indies, 15	Wrightson & Son	Canaries, 2 pkgs.	G. S. Bruce	" 500	Harris Bros.	Holland, 1 ck. 15 pkgs.	Phillips & Graves
Castor Oil—		Italy, 1,944	B. Jacob & Sons	" 310	J. Graves	France, 108	W. Harrison & Co.
France, 40 brls.	J. T. Morton	Cochineal		" 1,000	Beverington & Sons	" 7	O'Hara & Hoar
" 68	Lucas & Spencer's Wf. Ltd.	Canaries, 42 pkgs.	L. & I. D. Jt. Co.	" 800	Beresford & Co.	" 10	J. Greig
" 10	F. Boehm	" 35	Sperling & Williams	Tanner's Bark		Oxalic Acid—	
" 40 pkgs.	Beresford & Co.	" 16	Kuhner, Henderson, & Co.	Belgium, 49 t.	Leach & Co.	Holland, 6 pkgs.	Beresford & Co.
		" 46	Marshall & French	Natal, 13	L. & I. D. Jt. Co.		
		Extracts		N. Zealand, 9	Beresford & Co.		
		Austria, 425 pkgs.	J. Rowntree	" 7	Escombe Bros. & Co.		
		Belgium, 175	L. J. Levinstein & Sons	Valonia			
		France, 50	"	A. Turkey, 52 t.	A. & W. Nesbitt		
				Dyestuffs (otherwise undescribed)			
				France, 1 pkge.	Herna, Peron, & Co		

Ozokerit —		
Germany, 200 pkgs.	A. J. Humphrey	
" 46	M. D. Co.	
Para-aldehyde —		
Holland, 9 pkgs.	J. Barber & Co.	
Phosphate Rock —		
France, 360 t.	A. Hunter & Co.	
Belgium, 260	West & Penrose	
" 50	Lawes Manure Co., Ltd.	
Pitch —		
N. Russia, 50 brls.	J. Hunt & Son	
Plumbago —		
Cochin, 1,049 cks.	Parry & Co.	
Germany, 4	B. Gallaway	
" 31 brls.	J. Thredder, Son, & Co.	
Ceylon, 21		
" 190	R. G. Hall & Co.	
Potassium Carbonate —		
Germany, 310 c.	Petri Bros.	
France, 200	Charles & Fox	
Potassium Chloride —		
Germany, 120 pkgs.	F. W. Berk & Co.	
" 120	W. G. Blagden	
China, 59	Bessler, Waechter & Co.	
Potassium Cyanide —		
Germany, 4 pkgs.	Evans, Lescher & Co.	
Holland, 10	F. Boehm	
Potassium Sulphate —		
France, 610 pkgs.	Mead, Son, & Co.	
" 500	F. W. Berk & Co.	
Pumice Stone —		
Italy, 41 t.	T. H. Jones	
" 8	Seaward Bros., Ltd.	
" 3½	O'Hara & Hoar	
" 11	E. Fellingham	
" 11	Stobbs Wilson & Co.	
Canary, 3	Sinclair, Hamilton & Co.	
Italy, 25	G. W. Largen	
" 2	Burrell & Co.	
N. Zealand, 2½	W. K. Graham & Sons	
Quicksilver —		
Italy, 500 btl.	L. & I. D. Jt. Co.	
Algeria, 100 flks.	H. Bath & Sons	
Rosin —		
U. States, 450 brls.	F. & S. Chiesman & Co.	
" 300	Dussek Bros. & Co.	
" 250	Prod. Brokers' Co.	
Salammoniac —		
Holland, 4 pkgs.	Kaltenbach & Schmitz	
Saltpetre —		
Germany, 125 pkgs.	G. Ward & Sons	
" 30 cks.	Brown & Elmslie	
" 4	Petri Bros.	
E. Indies, 425 bgs.	A. Hunter & Co.	
" 265	Brown & Elmslie	
" 1,161	Ralli Bros.	
" 265	Lucas & Spencer's Wf., Ltd.	
" 444	L. & I. D. Jt. Co.	
Silica —		
Germany, £200	A. Haacke & Co.	
Soda —		
Germany, 100 cs.	H. Lambert	
Sodium Acetate —		
France, 16 pkgs.	H. Lorenz	
Sodium Hypsulphite —		
Holland, 200 pkgs.	Petri Bros.	
" 240	J. Owen	
Starch —		
Germany, 1,512 pkgs.	Horne & Co.	
" 500	L. Sutro & Co.	
Holland, 851	Little & Johnston	
" 10	J. Barber & Co.	
" 50	Phillips & Graves	
" 800	Vokins & Co.	
Belgium, 553	Prop. Scott's Wf.	
" 69	F. Clayton & Co.	
" 80	Leach & Co.	
" 120	Sawer, Sons, & Co.	
France, 5	Dutrulle, Solomons & Co.	
Stearine —		
France, 20 cks.	Ross & Deering	
" 230 bgs.	Walbaum & Tossetti	
" 309	Palmer & Co.	
Belgium, 149	H. Hill & Sons	
Sulphur —		
Italy, 5 t.	H. Grey, jun.	
" 15	F. Smith	
" 300	Brandram Bros. & Co.	
" 10	Co-op. Lthge. Assn.	
" 250	T. Farmer & Co.	
" 90	G. Boor & Co.	
" 16	J. Kitchin, Ltd.	
" 13	J. Puddy & Co.	
" 260	W. C. Bacon & Co.	

" 27	Thames S. T. & L. Co. Ltd.	
" 31	F. C. Devon & Co.	
" 2	C. Christophersen & Co.	
Talc —		
Italy, £10	T. H. Jones	
E. Indies, £1,774	Ross & Deering	
Tallow and Stearine —		
Belgium, 4 cks.	Magee, Taylor & Co.	
Tartaric Acid —		
Italy, 32 pkgs.	B. & F. Wf. Co.	
Holland, 33	Kirkpatrick & Co.	
" 10	F. C. Devon & Co.	
" 10	B. & F. Wf. Co.	
Turpentine —		
N. Russia, 104 brls.	C. B. Leighton	
Ultramarine —		
Holland, 5 cs.	Phillips & Graves	
" 11	G. Rahn & Co.	
Belgium, 3	Leach & Co.	
Varnish —		
France, 14 pkgs.	Flageolet & Co.	
U. States, 54	Staynes & Smith	
White Lead —		
Germany, 9 cks.	Randall Bros.	
Holland, 2 cs.	G. Rahn & Co.	
Austria, 6 cks.	W. Adolph & Co.	
Germany, 17	Petri Bros.	
" 38	Spies Bros. & Co.	
" 27	Burrell & Co.	
Belgium, 28	Colthurst & Harding	
Wood Pulp —		
Germany, 245 pkgs.	O. Herrlich	
" 34	Thames S. T. & L. Co.	
" 1,536	E. J. & W. Goldsmith	
Canada, 5,588		
Holland, 1,304		
" 50	W. Friedlander	
Belgium, 453	Wescott & Laurance	
Sweden, 3,707	Tough & Henderson	
" 40	Page, Son, & East	
" 203	W. G. Taylor & Co.	
Norway, 406	Tough & Henderson	
" 450	Henderson, Craig, & Co.	
" 680		
Holland, 160	Page, Son, & East	
Sweden, 406	Daily Telegraph Co.	
" 40	C. Christophersen & Co.	
Portugal, 20	L. Knoblauch	
Zinc Oxide —		
Germany, 15 cks.	R. W. Greeff & Co.	
" 50 pkgs.	Prprs. Dowgate Dk.	
" 75 brls.	M. Ashby, Ltd.	
Holland, 100		
" 1 ck.	J. Matton	
U. States, 100 brls.	M. Ashby, Ltd.	

LIVERPOOL.

Week ending October 4th.

Barytes —		
Rotterdam, 21 cks.		
Antwerp, 36	50 bgs.	
Bone Meal —		
Karachi, 2,000 bgs.		
Boracic Acid —		
Leghorn, 12 cks.	Pickford & Co	
" 95		
Camphor —		
Hamburg, 1 brl.		
Caoutchouc —		
Valparaiso, 5 bls.	Kleinwort, Sons, & Co.	
" 9	Brandt, Sons, & Co.	
Castor Oil —		
Calcutta, 60 cs.		
Leghorn, 25		
Marseilles, 8 cks.	Belfast & Mersey S. S. Co.	
" 6	J. J. Mack & Son	
" 405		
Genoa, 20 cs.		
Chemicals (otherwise undescribed)		
Boston, 34 bxs.	J. Cassels & Co.	
Citric Acid —		
Messina, 12 cks.		
Cod Oil —		
St. John's, Nfld., 90 cks.	J. J. Langley	
Colours —		
Hamburg, 4 cks.	1 cs.	
Antwerp, 3		
Rotterdam, 4 pkgs.	6	
Cream of Tartar —		
Tarragona, 5 cks.		

Dyestuffs —		
Argols		
Oporto, 22 cks.		
Cochineal		
Gd. Canary, 29 bgs.	Kennedy & Moore	
" 8	K. Henderson & Co	
Teneriffe, 20	Ansbrocher & Co.	
" 20	Brown Bros. & Co.	
Extracts		
Bordeaux, 60 cks.		
Marseilles, 20	19 brls	
Philadelphia, 350		
Fustic		
Savannah, 1,397 logs.		
Vera Cruz, 1,493 ps.	R. B. Watson & Co.	
" 741	Bourne, Graham & Fell	
Tampico, 9 081 stks.	Gruning & Co.	
" 4 230 ps.	Oetling & Co.	
" 3,996	W. H. Thompson & Co.	
Trieste, 20 t.	A. Cross & Co.	
Logwood		
Belize, 420 t.		
Madder		
Marseilles, 5 cks.		
Myrabolams		
Bombay, 285 bgs.	D. Sassoon & Co.	
Shumac		
Palermo, 134 bgs.	Simpson, Mackin & Co.	
" 200	J. Kitchin, Ltd.	
Valonia		
Vostizza, 1 bg.		
Farina —		
Fiume, 100 bgs.	C. T. Van der Veen & Bns.	
" 100		
Glucose —		
New York, 400 brls.		
Dunkirk, 200 bgs.		
Limestone —		
Antwerp, 2 frs.	1 crt.	J. T. Fletcher & Co.
Magnesite —		
Fiume, 3 cks.	12 cs.	
Mica —		
New York, 10 brls.	Millot Bros.	
Mineral —		
Vera Cruz, 1,883 bgs.	Bessler, Waechter & Co.	
Mineral White —		
Fiume, 400 bgs.		
Ochre —		
Marseilles, 60 brls.		
Naples, 57	J. Glynn & Son	
Paint —		
Montreal, 7 bxs.	Wingate & Johnston	
Paraffin Scale —		
Philadelphia, 100 brls.		
Phosphate —		
Montreal, 372 t.		
Phosphate Rock —		
Tampa, 2,500 t.		
Pitch —		
Amsterdam, 23 cks.		
Plumbago —		
Genoa, 100 bgs.	G. Huntriss & Co.	
Potash —		
Hamburg, 34 cks.		
Antwerp, 5 dms.		
Potash Salts —		
Hamburg, 250 bgs.		
Potassium Carbonate —		
Hamburg, 10 cks.		
Potassium Prussiate —		
Rotterdam, 3 cs.		
Pumice Stone —		
Leghorn, 19 cks.		
Messina, 10 bgs.		
Teneriffe, 250		
Pyrites —		
Huelva, 2,062 t.		
" 1,648	Matheson & Co.	
Rosin —		
New York, 1,200 brls.		
Boston, 1,472		
Bordeaux, 3		
Salt —		
Madeira, 95 bgs.		
Soap —		
New York, 102 cs.		
Leghorn, 250 bxs.	Weaver & Sterry	

Marseilles, 5 cs.		
Bari, 72		
Genoa, 20		
Gibraltar, 59 bxs.		
Newport News, 75 brls.		
Soapstone —		
Genoa, 350 bgs.	G. Huntriss & Co.	
Sodium Nitrate —		
Iquique, 15,190 bgs.	Liverpool Nitrate Co.	
Caleta Buenas, 19,626 bgs.	H. Bath & Sons	
Iquique, 8,960	W. & J. Lockett	
Starch —		
New York, 491 bgs.		
Antwerp, 38 cs.	J. T. Fletcher & Co.	
" 396 bxs.		
Rotterdam, 50		
Stearine —		
New York, 50 cs.	Co-op. W'sale Society, Ltd.	
Antwerp, 140 bgs.		
Sulphur —		
Genoa, 400 bgs.	Pacific S. N. Co.	
Catania, 530	33 cks.	45 brls.
Girgenti, 300 t.		
Tallow —		
Lisbon, 1 pkge.	Knowles & Foster	
Leghorn, 6 cks.		
Tartar —		
Bordeaux, 13 cks.		
Rotterdam, 2		
Tartaric Acid —		
Hamburg, 1 ck.		
Marseilles, 18 brls.		
Rotterdam, 6 cks.		
Ultramarine —		
Hamburg, 10 cs.		
Rotterdam, 25	2 cks.	
Waste Salt —		
Hamburg, 100 bgs.		
Dunkirk, 100		
Wood Pulp —		
Hamburg, 50 bls.		
Oporto, 800	Ciama Wood Pulp Co.	
Halifax, 2,020 bdls.	J. J. Langley	
Zinc Ashes —		
Marseilles, 17 brls.		
Zinc Oxide —		
Antwerp, 30 brls.		
Rotterdam, 50 cks.		

MANCHESTER.

Week ending October 6th.

Antimony —		
Treport, 2 cks.		
Antimony Oxalate —		
Rotterdam, 10 cks.		
Arachide Oil —		
Rotterdam, 1 ck.		
Bone Ash —		
Saladero San Javier, 414,101 kilos.		
Rio Grande do Sul, 363½ t.		
Carbonic Acid —		
Rotterdam, 20 tubes.		
Chrome Alum —		
Rotterdam, 6 cks.		
Colours —		
Treport, 11 cks.	4 cs.	
Rotterdam, 51	20	33 brls. 2 bxs.
Antwerp, 5	10	2 pkgs.
Dyestuffs —		
Extracts		
Treport, 16 cks.		
Bordeaux, 75		
Farina —		
Rotterdam, 250 bls.		
Limestone —		
Antwerp, 2 cs.		
Litharge —		
Rotterdam, 6 cks.		
Ochre —		
Treport, 10 cks.		
Pitch —		
Antwerp, 1 cs.		

Potash—
Rotterdam, 10 cks.
Potassium Sulphate—
Rotterdam, 100 cks.
Sodium Acetate—
Treport, 9 cks.
Starch—
Rotterdam, 70 cs.
Tartar—
Bordeaux, 4 cks.
Tartaric Acid—
Rotterdam, 7 cks.
Ultramarine—
Rotterdam, 3 cks. 2 cs.
Wood Pulp—
Soderhamn, 25, 284 ps.
Zinc Ashes—
Antwerp, 16 cks.

HULL.*Week ending October 6th.*

Acid—
Rotterdam, 6 cks. W. & C. L. Ringrose
Bari, 29 cks. Wilson, Sons, & Co., Ltd.
Albumen—
Libau, 5 cs.
Aniline—
Hamburg, 50 cks. Wilson, Sons, & Co., Ltd.
Aniline Colours—
Amsterdam, 1 ck. W. & C. L. Ringrose
Asbestos—
Genoa, 62 pks.
Barytes—
Antwerp, 180 bgs. 55 cks. Bailey & Leatham
Rotterdam, 22 cks. W. & C. L. Ringrose
Antwerp, 48
Castor Oil—
Antwerp, 58 brls.
Calcutta, 2,000 cs.
Chemicals (otherwise undes.)—
Hamburg, 1 ck. Bailey & Leatham
Stettin, 25 cks. Wilson, Sons, & Co., Ltd.
Bremen, 4 pks. Veltmann & Co.
Dunkirk, 25 pks. Wilson, Sons, & Co., Ltd.
Antwerp, 25
Hamburg, 4 cks. "
Cod Oil—
Aalesund, 125 brls. Wilson, Sons, & Co., Ltd.
Bergen, 10
" 46 pks. Wilson, Sons, & Co., Ltd.
Colours—
Rotterdam, 2 cs. 7 cks. 45 brls. 5 bks. 1 kg. Hutchinson & Son
" 9 24 38 pks. W. & C. L. Ringrose
" 1 16 Wilson, Sons, & Co., Ltd.
Ghent, 3 brls.
Hamburg, 14 cks. Bailey & Leatham
Bremen, 2 Veltmann & Co.
Trieste, 128 brls. Watson, & Harris
Amsterdam, 3 cks. Wilson, Sons, & Co., Ltd.
Antwerp, 23 pks. W. & C. L. Ringrose
Wilson, Sons, & Co., Ltd.
Cottonseed Oil—
New York, 25 brls. Wilson, Sons, & Co., Ltd.
Dextrine—
Stettin, 300 bgs. Wilson, Sons, & Co., Ltd.
Dyestuffs—
Alizarine
Rotterdam, 12 brls. Hutchinson & Son
" 3 brls. W. & C. L. Ringrose
Indigo
Trieste, 1 cs. Wilson, Sons, & Co., Ltd.

Sumac
Trieste, 15 bgs. Wilson, Sons, & Co., Ltd.
Palermo, 1,175
" 1,705
Farina—
Hamburg, 25 bgs. White & Son
Harlingen, 50
Hamburg, 100 Wilson, Sons, & Co., Ltd.
" 150
Ghent, 196 cs.
Hamburg, 100 bgs. Bailey & Leatham
Glucose—
Stettin, 200 bgs. 12 cks.
Hamburg, 13 cks. Wilson, Sons, & Co., Ltd.
Guano—
Bergen, 600 bgs. Wilson, Sons, & Co., Ltd.
Manganese—
Bremen, 2 cks. Veltmann & Co.
Paint—
Boston, 20 cs.
Phosphate—
Rotterdam, 7 cks. W. & C. L. Ringrose
Pitch—
Antwerp, 9 cs. Bailey & Leatham
Hamburg, 7 brls. Wilson, Sons, & Co., Ltd.
Potash—
Dunkirk, 20 dms. Wilson, Sons, & Co., Ltd.
Pumice Stone—
Messina, 8 cks. Wilson, Sons, & Co., Ltd.
Rosin—
New York, 75 brls. Wilson, Sons, & Co., Ltd.
Saltpetre—
Antwerp, 135 bgs. Wilson, Sons, & Co., Ltd.
Soap—
Bari, 158 cs. Wilson, Sons, & Co., Ltd.
" 33
Naples, 88 "
Soda—
Rotterdam, 10 brls. Hutchinson & Son
" 1 ck. W. & C. L. Ringrose
Starch—
Bremen, 2,805 cs. Veltmann & Co.
Stearine—
Rotterdam, 10 brls. Wilson, Sons, & Co., Ltd.
Antwerp, 10 bgs. 2 cks. "
Sulphur—
Catania, 50 t. Wilson, Sons, & Co., Ltd.
" 1,907 bgs. 194 cks.
Tallow—
Boston, 28 brls. Wilson, Sons, & Co., Ltd.
Tar—
Jacobstadt, 971 brls.
Tartar—
Messina, 6 cks. Wilson, Sons, & Co., Ltd.
Tartaric Acid—
Rotterdam, 2 cks. Hutchinson & Son
Toluol—
Hamburg, 6 cks. W. & C. L. Ringrose
Turpentine—
Libau, 54 brls.
Ultramarine—
Rotterdam, 30 cs. Hutchinson & Son
Varnish—
Antwerp, 3 cs. Bailey & Leatham
New York, 6 brls. Wilson, Sons, & Co., Ltd.
White Lead—
Antwerp, 31 cks. Bailey & Leatham
Rotterdam, 30 Hutchinson & Son
Wolfram—
Hamburg, 10 cs. Wilson, Sons, & Co., Ltd.
Wood Pulp—
Abo, 40 brls. J. Good & Sons
" 82 Furley & Co.

Hango, 290 J. Good & Sons
Zinc Oxide—
Rotterdam, 15 cks. Hutchinson & Son

GLASGOW.*Week ending October 11th.*

Acetic Acid—
Rotterdam, 4 cks. J. Rankine & Son
Aluminium—
New York, 1 cs.
Aniline Colours—
Rotterdam, 13 cs. 16 cks. J. Rankine & Son
Arachide Oil—
Rotterdam, 4 cks. J. Rankine & Son
Asbestos—
Montreal, 100 bgs.
Barytes—
Rotterdam, 89 cks.
Barytes Sulphate—
Antwerp, 50 bgs. 29 cks.
Castor Oil—
Calcutta, 350 cs.
Marseilles, 161 cks. 100 pks.
Antwerp, 85
Chromium Fluoride—
Rotterdam, 10 cks. J. Rankine & Son
Colours—
Rotterdam, 3 cs. 15 cks. J. Rankine & Son
" 27 pks.
Cream of Tartar—
Marseilles, 5 brls.
Dyestuffs—
Alizarine
Rotterdam, 133 cks. J. Rankine & Son
" 32 pks.
Extracts
Baltimore, 50 brls. M'Arthur, Scott, & Co.
Antwerp, 4 cks.
Nantes, 150
Belize, 65 1/4 t. Allison, Cousland, & Co.
Madder
Marseilles, 6 brls.
Farina—
Delfryl, 500 bgs.
Glucose—
New York, 200 brls.
Hamburg, 1 ck.
Guano—
Iceland, 768 sks.
Kryolith—
Rotterdam, 1 ck. J. Rankine & Son
Lead Acetate—
Rotterdam, 32 cks. J. Rankine & Son
Hamburg, 12
Ochre—
Marseilles, 50 brls.
Oxalic Acid—
Rotterdam, 6 cks. J. Rankine & Son
Painters' Colours—
Antwerp, 9 cks.
Phosphates—
Ghent, 1,627 bgs.
Potassium Carbonate—
Hamburg, 31 cks.
Rosin—
New York, 500 brls.
Soap—
Rotterdam, 4 cs. J. Rankine & Son
Stearine—
Antwerp, 63 bgs.
Rotterdam, 33 cks. J. Rankine & Son
Tallow—
New York, 40 tcs.
Tartar—
Bordeaux, 5 cks.
Turpentine—
Savannah, 2,246 brls. John Parker
New York, 2 cs.
Waste Salt—
Hamburg, 156 lb.

White Lead—
Antwerp, 5 cks.
Rotterdam, 122 J. Rankine & Son
Whiting—
Dieppe, 25 cks. 134 bgs.
Wood Pulp—
Christiania, 746 brs.
Wood Spirit—
Hamburg, 6 dms.
Zinc Oxide—
Antwerp, 25 cks.
Zinc White—
Rotterdam, 100 cks. J. Rankine & Son

TYNE.*Week ending October 6th.*

Alum Earth—
Hamburg, 21 cks.
Asbestos—
Rotterdam, 4 bgs. Tyne S. S. Co.
Barytes—
Antwerp, 410 bgs. Tyne S. S. Co.
Castor Oil—
Antwerp, 29 brls. Tyne S. S. Co.
Colours—
Rotterdam, 1 cs. Tyne S. S. Co.
Antwerp, 2 brls. "
Kieselguhr—
Bergen, 90 bgs.
Limestone—
Antwerp, 2 crts. Tyne S. S. Co.
Ochre—
Carthage, 16 t. Dunford & Elliott
Pyrites—
Huelva, 1,791 t. Scott Bros.
Saltpetre—
Hamburg, 4 cks.
Ultramarine—
Hamburg, 2 cks. Tyne S. S. Co.
Rotterdam, 5 cs. "
Wood Pulp—
Skien, 480 brs.
Gothenburg, 120

GOOLE.*Week ending October 3rd.*

Alkali—
Calais, 2 cks.
Dyestuffs—
Alizarine
Rotterdam, 52 pks.
Indigo
Rotterdam, 16 cts.
Logwood
Belize, 440 t.
Dyestuffs (otherwise undescribed)
Rotterdam, 259 pks.
Boulogne, 17 cks. 17 cs.
Ghent, 5
Farina—
Hamburg, 300 bgs.
Glucose—
Hamburg, 12 cks.
Calais, 100 bgs.
Lead Acetate—
Hamburg, 12 cks.
Potash—
Rotterdam, 33 cks.
Dunkirk, 20
Saltpetre—
Rotterdam, 100 bgs.
Soda—
Rotterdam, 7 cks.
Hamburg, 12
Waste Salt—
Hamburg, 1,349 cks.

GRIMSBY.*Week ending October 6th.*

Albumen—
Hamburg, 8 cks.
Aniline Dyes—
Rotterdam, 16 pks.
Hamburg, 15
Farina—
Hamburg, 50 bgs.
Glucose—
Hamburg, 12 bgs.

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Tartaric Acid—			New York, 9 t. 5 2 q. 492		
Week ending October 10th.			Melbourne, 3 t. 15 c. £351			Montreal, 1 14 1 55		
Acids—			Sydney, 1 95			Boston, 3 1 3 144		
Hamburg, 1 cs. £12			New Plymouth, 3 16			Penang, 2 1 5		
Invercargill, 2 pkgs. 13			Wellington, 5 26			Castor Oil—		
Alkali—						New York, 15 cs.		
Napier, 2 t. £15						Caustic Potash—		
Alum—						Havre, 2 t. 3 c. £68		
Salonica, 68 brls. £59						Melbourne, 6 11 186		
Alum Cake—						Sydney, 5 7		
Calcutta, 18 t. 3 c. £65						Caustic Soda—		
Ammonia—						Ancona, 60 dms		
B. Ayres, 5 c. £25						Antwerp, 45		
Ammonia Salts—						Baltimore, 233		
Yokohama, 2 t. £68						Barcelona, 292 48 l.		
Ammonium Carbonate—						Bari, 53		
Bordeaux, 5 cks. £17						Bombay, 10		
Melbourne, 10 c. 20						Boston, 165		
Rouen, 22 116						B. Ayres, 50		
New York, 110 pkgs. 395						Calcutta, 191		
Montreal, 2 t. 10 c. 90						Fairwater, 64		
Ammonium Chloride—						Fiume, 244		
Yokohama, 2 t. 3 c. £79						Guelph, 30		
Cologne, 7 cks. 41						Hamburg, 45 20		
Braila, 1 1 44						Havana, 80		
Genoa, 9 67						Ibrail, 64		
Ammonium Sulphate—						Iquique, 15		
Dunkirk, 36 t. 12 c. £493						La Guayra, 25		
Madeira, 1 14						Macao, 2		
Arsenic—						Marseilles, 140		
Melbourne, 1 t. £16						Montreal, 35		
Odessa, 1 16						N Orleans, 85		
Barytes Sulphate—						New York, 395 25		
Leghorn, 10 cks. £41						Odessa, 191		
Naples, 10 41						Oporto, 28		
Bisulphite of Lime—						Pacasmayo, 60		
Calcutta, 3 t. 13 c. £66						Petrolia, 35		
Borax—						Progresso, 4		
Braila, 16 c. £21						Puerto Cabello, 10		
Calcined Magnesia—						Quebec, 25		
Sevilla, 21 cs. £142						San Francisco, 200		
Carbolic Acid—						Stettin, 134		
Rotterdam, 9 t. 11 c. £170						Sydney, 30		
Cologne, 40 cks. 282						Tarragona, 140		
Sydney, 19 7						Toronto, 75		
Napier, 13 23						Trieste, 15		
Marseilles, 43 cks. 122						Valparaiso, 160		
Antwerp, 8 12						Venice, 21		
Caustic Soda—						Yokohama, 200		
Algoa Bay, 5 c. £7						Adelaide, 15		
E. London, 16 22						Alexandria, 30		
Natal, 6 12						Amsterdam, 48		
Otago, 1 t. 17 16						Callao, 25		
Calcutta, 3 9						Cape Town, 8		
Auckland, 6 12						Galatz, 719		
Lyttelton, 1 18						Genoa, 46		
Wellington, 1 18						Hiogo, 100		
Chemicals (otherwise undescribed)						Lancaster, 35		
Montreal, 12 t. £325						Latakia, 25 cks.		
Salonica, 12 c. 70						Leghorn, 36		
Napier, 4 14						Lisbon, 50		
Wellington, 5 pkgs. 31						Melbourne, 14 68 pkgs.		
Citric Acid—						Pernambuco, 103		
St. Petersburg, 8 cks. 1 t. 10 c. £459						Piraeus, 65		
Genoa, 1 10 210						Rio de Janeiro, 25		
Dusseldorf, 10 64						Rotterdam, 10		
Hamilton, 1 6						Salaverry, 10		
Hamburg, 8 pkgs. 6 363						Singapore, 15		
Colombo, 1 cs. 5						Tarragona, 40		
Lisbon, 8 56						Tunis, 15		
Coal Products—						Vancouver, 2		
Alizarine						Vera Cruz, 100		
New York, 27 cks. £340						Vigo, 28 6		
Bombay, 125 kgs. 553						Chemicals (otherwise undescribed)		
Aniline Dyes						Smyrna, 2 t. £75		
Hamburg, 2 pkgs. £9						Mersyne, 8 c. 3 q. 16		
Anthracene						New York, 19 11 2 702		
Merdingen, 215 cks. £2,520						Philadelphia, 13 4 445		
Benzol						Genoa, 16 20		
Treport, 70 cks. £147						Odessa, 4 148		
Rotterdam, 48 137						China Clay—		
Boulogne, 50 136						Boston, 598 t. 10 c.		
Creosote						Montreal, 300		
Bordeaux, 100 brls. £1,498						New York, 100		
Naphtha						Philadelphia, 100		
Calais, 50 brls. £130						Coal Products—		
Pitch						Aniline Colours		
St. Petersburg, 24 brls. £58						Shanghai, 35 cs.		
Hochfeld, 120 t. 186						Aniline Salts		
Antwerp, 790 1,422						Bombay, 2 cks.		
						Boston, 63 cs.		
						Barcelona, 10		
						Valleyfield, 4		
						Naphthol Colour		
						New York, 31 cks.		

Yarnish—		
Bombay,	45 dms.	
Calcutta,	6 cks.	
Cape Town,		1 cs.
Madras,		5
Melbourne,		2
Pernambuco,		1
Seville,	6	
Underhill,	5	
White Lead—		
Rio de Janeiro,	2 cks.	
Whiting—		
Paysandu,	20 cks.	
Valparaiso,	100 brls.	
Zinc Chloride—		
Bombay,	12 t. 18 c.	£303
Zinc Sulphate—		
Bombay,	9 c.	£8

MANCHESTER.

Week ending October 11th.

Alum—		
Alexandretta,	20 brls.	
Aniline Salt—		
Hamburg,	1 pun.	
Carbolic Acid—		
Rotterdam,	81 cks.	
Colours—		
Antwerp,	1 cs.	
Dyestuffs (otherwise undescribed)		
Rotterdam,	6 kgs. 1 cs.	
Lead Acetate—		
Rotterdam,	1 ck.	
Paraffin Wax—		
Barcelona,	40 bgs.	
Pitch—		
Antwerp,	100 t.	
Potassium Sulphate—		
Rotterdam,	1 cs.	
Pyridine—		
Rotterdam,	12 cks.	
Soap—		
Malta,	20 bxs.	

HULL.

Week ending October 6th.

Ammonium Sulphate—		
Antwerp,	100 bgs.	
Dunkirk,	342	
Hamburg,	50	
Stettin,	100	
Bleaching Powder—		
Bombay,	20 dms.	
Stettin,	116 cks.	
St. Petersburg,	49	
Caustic Soda—		
Abo,	1 ck.	
Danzig,	284 dms.	
Rotterdam,	37	
Chemicals (otherwise undescribed)		
Antwerp,	3 cks. 20 cs.	
Abo,	10 1 pks.	
Amsterdam,	4 12	
Bremen,	5	
Bombay,	2,350 400	
Boston,	100	
Christiania,	7	2 378slbs.
Copenhagen,	2	
Danzig,	12 66	
Fiume,	10	
Gothenburg,	1 12	
Hamburg,	5 12 111	
Konigsberg,	19 1	10 kgs.
Kurrachee,	125 5 1	
Rotterdam,	6 40	
Stettin,	11	
Cottonseed Oil—		
Antwerp,	100 c.	
Amsterdam,	42	
Gothenburg,	153	
Hamburg,	804	
Konigsberg,	300	
Rotterdam,	670	
Stettin,	152	
Stockholm,	162	
Trieste,	401	
Dyestuffs (otherwise undescribed)		
Antwerp,	80 bgs.	
Amsterdam,	2 cks.	
Danzig,	6 7 cs.	
Antwerp,	13	
Konigsberg,	1	
Stettin,	2	
Linseed Oil—		
Antwerp,	94 c.	
Bombay,	450	

Christiania,	318	
Christiansund,	35	
Copenhagen,	17	
Drontheim,	27	
Hamburg,	199	
Messina,	10	
Rotterdam,	124	
Stettin,	800	
Stockholm,	399	
Trieste,	230	
Manure—		
Dunkirk,	50 t.	
Paint—		
Gothenburg,	2 cks.	
Painters' Colours—		
Antwerp,	22 cks. 132 pks. 3 cs.	
Amsterdam,		
Bombay,	560 60	
Boston,	7	
Christiania,	29	1
Copenhagen,	8	
Drontheim,	48	1
Danzig,	31	
Fiume,	10	
Gothenburg,	6	1
Hamburg,	38	
Konigsberg,	300 70	
New York,	16	26 7
Rotterdam,		
Stockholm,		
St. Petersburg,	37	
Pitch—		
Antwerp,	400 t.	
Christiansund,	5 cks.	
Kurrachee,	171	
Slag—		
Konigsberg,	50 t.	
Soap—		
Abo,	1 cs.	
Christiania,	1	
Gothenburg,	1	
Hamburg,	1	
Stockholm,	1	
Tallow—		
Gothenburg,	9 cks.	
Harlingen,	7	
Rotterdam,	22	
Stockholm,	13	
Tar—		
Antwerp,	4 cks.	
Copenhagen,	6	
Danzig,	2	
Turpentine—		
Bombay,	105 dms.	
Yarnish—		
Antwerp,	2 cks. 1 cs.	75 dms.
Bombay,		
Ghent,	1	
Gothenburg,	1	
Hamburg,	5 4	29 pks.
Whiting—		
Bombay,	13 cks.	

GLASGOW.

Week ending October 11th.

Alkali—		
Philippines,	7 t. 6¼ c.	£64
Brisbane,	8 5	36
Ammonium Sulphate—		
Rotterdam,	51 t.	£643
France,	33 5¼ c.	416
Hamburg,	50 10	650
Bisulphite of Lime—		
Madras,	1 t. 4¼ c.	£20
Bleaching Powder—		
Calcutta,	25 t. 1 c.	£300
Borax—		
Canada,	5 t. 15 c.	£120
Melbourne,	1 1	24
Castor Oil—		
Brisbane,		£59
Caustic Soda—		
Brisbane,	15 t. 6 c.	£140
Newcastle,	21	225
Coal Products—		
Pitch		
Canada,		£37
Caen,	460 t.	
Tar		
Straits,		£59
Boston,	24 t. 10 c.	50
Riga,	300 brls.	180
Hamburg,	200 cks.	85
Tar and Pitch		
New York,	72 t. 7¼ c.	£110
Tar Oil		
France,	2 t. 6 c.	£45
Cod Oil—		
Brisbane,	212 glns.	£21

Copperas—		
Calcutta,	14 t.	£25
Dried Blood—		
Rouen,	10 t. 2 c.	£70
France,	4 19¼	36
Dyestuffs—		
Extracts		
Canada,	15¼ c.	£35
Melbourne,	1 t. 9	72
Logwood		
Oporto,	12 t. 6 c.	£168
Boston,	2 9¼	35
Sumac Extract		
Canada,	2 t. 6 c.	£41
Glucose—		
New York,	100 glns.	£24. 19s.
Linseed Oil—		
Philippines,	500 glns.	£50
Brisbane,	375	46
Magnesium Sulphate—		
Christiania,	10 t.	£31
Brisbane,	3 7 c.	£20. 17s.
Newcastle,	5 7¼	£34
Paint—		
New York,	4 t. 9 c.	£75
Sydney,	1 2¼	23
Newcastle,	4 5	52
Hong Kong,	3	62
Painters' Colours—		
Brisbane,		£370
Colombo,	1 t. 19 c.	23
Singapore,	2 12	26
Paraffin Wax—		
Christiania,	2,268 lbs.	£32
Hamburg,	40 t. 13 c.	952
Japan,	5 15¼	104
Riga,	50 bgs.	120
Potassium Bichromate—		
Rotterdam,	12 cks.	£200
Antwerp,	30 t. 19¼ c.	832
Potassium Prussiate—		
Japan,	11¼ c.	£49
Salt—		
Brisbane,	90 t. 4 c.	£114
Saltcake—		
Antwerp,	101 t. 15 c.	£89
Slag—		
Rotterdam,	463 t.	£161
Soap—		
S. John's, Nfld.,	1 t. 7¼ c.	£24
Canada,	1 18¼	29
New York,	1 7¼	25
Sodium Bichromate—		
Rouen,	4 t. 19 c.	£162
Antwerp,	4 14¼	155
Sodium Nitrate—		
Trinidad,	15 t. 8 c.	£159
Tallow—		
Rotterdam,	9 t. 1 c.	£352
Turpentine—		
Philippines,	500 glns.	£50
White Lead—		
Christiania,	24 tins.	£5
Canada,	21 t. 8¼ c.	214
Brisbane,	13	£281. 10s.
Newcastle,	20 2¼	£410
Whiting—		
Brisbane,	31 t. 17 c.	£39

TYNE.

Week ending October 6th.

Alkali—		
Antwerp,	5 t. 5 c.	
Hamburg,	5 11	
Gothenburg,	5 2	
Christiania,	44 12	
Copenhagen,	2 9	
Libau,	19 13	
Ammonium Sulphate—		
Barcelona,	13 t. 11 c.	
Valencia,	80 15	
Antimony—		
Hamburg,	3 t.	
Bleaching Powder—		
Hamburg,	41 t.	
Gothenburg,	5 1 c.	
Stockholm,	3 1	
San Francisco,	7 10	
Rotterdam,	32 10	
Libau,	24 12	
Drontheim,	10 2	
Caustic Soda—		
Barcelona,	113 t. 13 c.	
Antwerp,	2 2	
Hamburg,	53 4	
Gothenburg,	4 18	
Valencia,	17 5	
Stockholm,	9 17	

San Francisco,	137 16	
Copenhagen,	8 14	
China Clay—		
Copenhagen,	8 t. 19 c.	
Litharge—		
Stockholm,	5 t. 14 c.	
Magnesia—		
Barcelona,	11 t.	
Antwerp,	1 c.	
Hamburg,	5	
Manure—		
Valencia,	199 t.	
Paint—		
Antwerp,	10 c.	
Port Nilloth,	1	
Rotterdam,	19	
Paraffin Wax—		
Barcelona,	5 t. 2 c.	
Pitch—		
Port Nilloth,	3 c.	
Salammoniac—		
Gothenburg,	1 t. 1 c.	
Salt—		
Port Nilloth,	6 c.	
Soap—		
Port Nilloth,	1 t. 13 c.	
Slag—		
Rotterdam,	193 t.	
Soda—		
Christiania,	5 t.	
Stavanger,	5 4 c.	
Esbjerg,	25 17	
Gefle,	25 1	
Nykjobing,	15 1	
Rotterdam,	25 2	
Ancona,	27 5	
Gothenburg,	9 1	
Soda Ash—		
Hamburg,	5 t. 9 c.	
Gothenburg,	13 12	
Stockholm,	30	
Gefle,	10 5	
Aalborg,	10 4	
Ancona,	1 7	
Bergen,	5	
Sodium Sulphate—		
Gothenburg,	126 t.	
Sulphur—		
Christiania,	400 t.	
Gothenburg,	65	
Superphosphate—		
Frederikshavn,	19 t. 12 c.	
Tallow—		
Rotterdam,	1 t. 17 c.	
Turpentine—		
Antwerp,	3 glns.	
White Lead—		
Antwerp,	1 c.	
Stockholm,	20 t. 5	
Copenhagen,	1 11	

GOOLE.

Week ending October 3rd.

Alkali—		
Dunkirk,	30 dms.	
Benzol—		
Boulogne,	24 cks.	
Chemicals (otherwise undescribed)		
Ghent,	1 ck.	
Hamburg,	27	
Rotterdam,	51	
Rouen,	4	
Coal Products (otherwise undes.)—		
Boulogne,	3 cks.	
Dyestuffs (otherwise undescribed)		
Ghent,	3 cks. 1 cs.	
Hamburg,	135	
Manure—		
Boulogne,	122 bgs.	
Pitch—		
Antwerp,	65 t.	

GRIMSBY.

Week ending October 6th.

Chemicals (otherwise undescribed)		
Dieppe,	170 btl.	
Hamburg,	22 33 cs.	
Malmö,	15	
Coal Products (otherwise undes.)—		
Dieppe,	87 cks.	

PRICES CURRENT.

WEDNESDAY, OCT. 17th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25% and 40%	per cwt.	7/-	10/9
Glacial	per lb.	50/-	
Arsenic S.G., 2000°	per lb.	0	14 6
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
(Cylinder), 30° Tw.	per lb.	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¾
Nitrous	per lb.	0	0 1¾
Oxalic	nett	0	0 3¾
Phosphoric, 1750°	per lb.	0	1 0
Picric	per lb.	0	1 0
Sulphuric (fuming 50%)	per ton	15	10 0
(monohydrate)	per lb.	5	10 0
(Pyrites, 168°)	per lb.	3	0 0
(free from arsenic, 145°)	per lb.	1	5 0
Sulphurous (solution) S.G. 1025	per lb.	3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric	per lb.	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	per lb.	5	0 0
Alumina Sulphate (pure)	per lb.	5	0 0
Aluminoferrous	per lb.	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	per lb.	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	per lb.	0	0 2½
Carbonate	nett	0	0 3¾
Muriate	per ton	23	10 0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-
Nitrate	per ton	41	0 0
Phosphate	per lb.	0	0 10½
Sulphate (grey) London	per ton	12	5 0
(grey) Hull	per lb.	12	5 0
Aniline Oil (pure)	per lb.	0	0 6
Aniline Salt	per lb.	0	0 5½
Antimony	per ton	33	10 0
(tartar emetic)	per lb.	0	0 9½
(golden sulphide)	per lb.	0	0 10
Barium Chloride	per ton	6	10 0
Carbonate (native)	per lb.	3	10 0
Sulphate (native levigated)	per lb.	45/-	to 75/-
Bleaching Powder, 35%	nett	7	10 0
Liquor, 7%	per lb.	3	10 0
Bisulphide of Carbon	per lb.	11	5 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	per ton	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	net per lb.	0	0 8
Magenta	per lb.	0	3 9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90% nominal	per gallon	0	1 2
50/90	per lb.	0	1 2
Carbolic Acid (crystallised 40°)	per lb.	0	0 5½
(crude 60°)	per gallon	0	1 0½
Creosote (ordinary)	per lb.	0	0 2
(filtered for Lucigen light)	per lb.	0	0 2½
Crude Naphtha 30% @ 120° C.	per lb.	0	0 5½
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	per lb.	1	15 0
Solvent Naphtha, 90% at 160°	per gallon	0	1 3
Lucigen and "Wells" Oils	per lb.	0	0 2½
Copper	per ton	41	0 0
Sulphate	per lb.	14	15 0
Oxide (copper scales)	per lb.	39	5 0
Glycerine (crude)	per lb.	15	0 0
(distilled S.G. 1250°)	per oz.	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	5 0
Sulphide (antimony slag)	per lb.	2	0 0
Lead (sheet) for cash	per lb.	11	2 6
Litharge Flake (ex ship)	per lb.	13	10 0
Acetate (white)	per lb.	25	0 0
brown	per lb.	15	10 0
Carbonate (white lead) pure	per lb.	16	0 0
Nitrate	per lb.	20	0 0

Lime, Acetate (brown)	per ton	7	5 0
(grey)	per ton	10	15 0
Magnesium (ribbon and wire)	per oz.	0	2 3
Chloride (ex ship)	per ton	2	10 0
Carbonate	per cwt.	1	17 6
Hydrate	per ton	17	0 0
Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	per cwt.	17	15 0
Borate	per cwt.	2	15 0
Ore, 70%	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	1 10
Naphtha (Wood), Solvent	per lb.	0	3 4
Miscible, 60° O.P.	per lb.	0	3 8

Oils:—			
Cotton-seed	per on	21	5 0
Linseed	per on	22	0 0
Petroleum, American	per gallon	0	0 5½
Stearine	per ton	25	10 0
Phosphorus (yellow)	per lb.	0	2 1
(red)	per lb.	0	2 8
Potassium (metal)	per oz.	0	3 7
Bichromate	per lb.	0	0 4½
Carbonate, 90% (ex ship)	per ton	16	15 0
Chlorate	per lb.	0	0 5½
Cyanide, 98%	per lb.	0	2 3
Hydrate (Caustic Potash) 80/85%	per ton	21	15 0
(Caustic Potash) 75/80%	per ton	20	0 0
(Caustic Potash) 70/75%	per ton	19	10 0
Nitrate (refined)	per cwt.	1	2 6
Permanganate	per cwt.	3	2 6
Prussiate Yellow	per lb.	0	0 10½
Sulphate, 90% (ex ship)	per ton	9	15 0
Muriate, 80% (do.)	per ton	8	7 6
Silver (metal)	per oz.	0	2 5½
Nitrate	per lb.	0	2 10
Sodium (metal)	per lb.	0	3 0
Carb. (refined Soda-ash) 48%	nett per ton	4	15 0
(Caustic Soda-ash) 48%	per lb.	4	0 0
(Carb. Soda-ash) 48%	per lb.	4	0 0
(Alkali) 58%	per lb.	3	15 0
(Soda Crystals)	per lb.	2	5 0
Acetate (ex-ship)	per lb.	14	15 0
Arseniate, 45%	per lb.	11	0 0
Chlorate	per lb.	0	0 7½
Borate (Borax)	per ton	20	0 0
Bichromate	per lb.	0	0 3¾
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	per ton	10	12 6
(74% Caustic Soda)	per ton	9	12 6
(70% Caustic Soda)	per ton	8	12 6
(60% Caustic Soda)	per ton	7	12 6
(60% Caustic Soda, cream) (f.o.b.)	per ton	7	10 0
Bicarbonate	per lb.	5	12 6
Hypsulphite	per lb.	5	10 0
Manganate, 30%	per lb.	16	0 0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	8 9
Nitrite, 98%	per ton	29	10 0
Phosphate	per ton	15	0 0
Silicate (glass)	per ton	5	7 6
(liquid, 100° Tw.)	per lb.	4	5 0
Stannate, 40%	per cwt.	3	2 9
Sulphate (Salt-cake)	per ton	0	17 6
(Glauber's Salts)	per lb.	1	5 0
Sulphide	per lb.	8	10 0
Sulphite	per lb.	5	7 6
Strontium Hydrate, 100%	per lb.	8	10 0
Sulphocyanide Ammonium, 95%	per lb.	0	0 7½
Barium, 95%	per lb.	0	0 5
Potassium	per lb.	0	0 7½
Sulphur (Flowers)	per ton	7	5 0
(Roll Brimstone)	per lb.	5	5 0
Brimstone: Best Quality	per lb.	3	15 0
Superphosphate of Lime (26%)	per lb.	2	7 6
Tallow	per lb.	23	10 0
Tin Crystals	per lb.	0	0 6
English Ingots	per lb.	72	10 0
Zinc (Spelter)	per ton	15	2 6
Chloride (solution, 96° Tw.)	per lb.	5	10 0

THE CHEMICAL TRADE JOURNAL

AND

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LATE ADVERTISEMENT.

FILTER PRESS, with 33 Plates, each 25 inches square. **HYDRO-EXTRACTOR**, with 42-inch cage, and Steam Engine attached direct driven.—J. W. MARTIN, 29, Corporation-street, Manchester.

Notices.

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

Advertisements.

Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Trade Advertisements, Announcements in the Directory Columns, and all Advertisements not prepaid, are charged at the Tariff rates, which will be forwarded on application.

Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

THE ADULTERATION OF FEEDING STUFFS.

As is generally the case, whenever a new Act is passed imposing conditions for the suppression of adulteration, the perpetrators of sophistication are ever ready with an excuse when a case is brought home to them. The new Act controlling the sale of manures and feeding stuffs, though capable of doing much, cannot do everything. It is but an instrument, and unless rightly used adulteration and deception will prevail.

A cake invoiced as "linseed with a natural admixture" recently caused the death of a score and a half of lambs. It showed a good percentage of oil, but on examination was found to contain castor oil beans. The answer by which this apparent fraud is disposed of is that linseed cannot be obtained without admixture, and so it is impossible to guarantee linseed cakes as pure, save in the restricted sense of the invoice just referred to. As a matter of fact, the contention is not tenable. Farmers, however, as a rule, are contented to accept any explanation, never taking the trouble to ascertain what reliance can be put in the *ex parte* statement of their informant. Yet they complain of the impositions to which they are subjected. Analysis, apart from guarantee, is of as little use as a guarantee unsupported by the testimony of analysis. There is not the slightest doubt but that a rigid adhesion on the part of farmers to these two stipulations would in many cases work to their own advantage. Glauber's salt containing less than half a per cent. of nitrate, sold under the fancy name of roasted nitrate of soda, would be an impossibility were farmers to be rather more circumspect. This particular article was sold at three pounds a ton, a figure which at first glance, as compared with the usual price of £8. to £10., appears to leave ample margin for any deterioration which may have occurred in the mysterious operation of "roasting." Computing its value on the percentage shown by analysis, however, three pounds proves to be a high price to pay for an article which, to be generous, is certainly not worth more than one-sixth of that sum, the actual value being something under half-a-sovereign.

This is only one instance of the losses which farmers lay themselves open to through carelessness and misplaced credulity. At the same time, cases could be quoted in which compensation has been secured where materials have been below the guaranteed strength. There is, therefore, no excuse to be made on the score that no benefit is to be gained by rightly using the means of protection which farmers have at their disposal, but there is rather every argument in favour of so doing.

OXYGEN AS A MEANS OF MEDICAL AID.

We referred a short while since to the possibilities of compressed oxygen gas as an antidote for "gassing." The results which we recorded were satisfactory as far as they

went, and we shall be pleased to learn of any results obtained with oxygen as a remedy under circumstances of this kind.

The use of this gas, however, may not be restricted to the sphere of chemical works, for it is not unlikely that it will, in time, take its place as a therapeutic duly recognised by the medical profession.

We hear that the gas has already been used to good purpose in the rôle of a therapeutic agent. The case was that of a serious pulmonary complaint, in which there was imminent danger of collapse, owing to the lungs being unable to effect the oxygenation of the blood rapidly enough. A bottle of compressed oxygen was obtained, and by means of a rubber tube, a current of oxygen was caused from time to time to play over the face of the patient. The effect appears to have been satisfactory, as eventually all signs of collapse disappeared and consciousness was restored.

It is to be hoped that further trials will be made as opportunity presents itself, to ascertain in what other cases, and to what extent oxygen, can be of service as a resuscitating agent.

MANUFACTURED TEA.

A somewhat curious case was heard last Saturday at the Worship-street Police-court, E.C. Two enterprising individuals, evidently inspired by the knowledge that tea leaves are seldom fully exhausted, conceived the idea of purchasing old tea leaves from restaurants, refiring the same, and selling the product as "damaged" tea, which, when mixed with genuine tea, was capable of making a very palatable "brew." The revivification was effected by a machine in which the spent leaves were blown by a powerful fan against heated pipes, causing the leaves to curl up and assume the appearance of ordinary tea, in which new guise they fetched 6½d. per pound. It was shown by the prosecution that over 6,000 pounds of this refired tea had been sold in two months, and as the article was not wholly without virtue this trade might have flourished for a long while. The matter, however, got to the ears of the Board of Customs, who were naturally interested, as they were losing the duty of 4d. per pound to which they are entitled on the sale of genuine teas. In consequence, summonses were laid under an obscure clause of an almost obsolete Act of George III., which renders all persons fabricating or dealing with fabricated tea, subject to a penalty for every pound weight made or sold.

The business had been carried on in ignorance of any contravention of the law, and had subsequently been stopped, in consideration of which each defendant was let off with a fine of £14. and £20. costs. The full penalty amounted to about £36,000., and the loss to the Inland Revenue was about £100. The idea of endeavouring to utilise a waste product, so to speak, is generally a commendable one, but there are exceptions to every rule, and this is a veritable exception; though it seems almost a pity that so much ingenuity should have been expended to no purpose.

THE INTERNATIONAL PAPER MAKERS' CONGRESS.

The paper makers of Belgium have come to the conclusion that over production is the cause of the depression which has pervaded the paper making industry for some time. With a view to arriving at some arrangement whereby the output may be curtailed, they have recently held an International Congress of Paper Makers at Antwerp. The English Paper Makers' Association was not represented, however. This Association, while declining the offer to send delegates, pointed out that in this country the production was already curtailed, as compared with

Continental countries, since all the English mills close from Saturday mid-day till the following Monday morning, which means a difference of about 40 hours in the working week. The British paper industry is, and has been suffering much from foreign competition, but this competition cannot be ameliorated to any appreciable extent by any resolutions which might be passed at the paper-makers' congress, while there is so much difference between the fiscal arrangements of our home and foreign Governments. While expressing this opinion the Association did not fail to intimate its willingness to co-operate with the Belgian paper-makers in any future project which would be for their mutual good.

At the first meeting of the Congress, several methods of lessening the output were discussed. The matter was eventually placed in the hands of the Committee of the Federation for further consideration, and the result of their deliberations is to be communicated to the next meeting of the Congress. There is, therefore, every likelihood of active steps being taken, in due course, to decrease the production of paper on the Continent, and it remains to be seen what influence, if any, the change will have upon British manufacturers.

THE SOUTH AFRICAN POTASSIUM NITRATE FIELDS.

THE nitrate beds at Prieska, Cape Colony, present the most valuable and richest deposit of nitrate of potash ever found. It is a most valuable substance, not to be confounded with sodium nitrate or Chilian saltpetre, so largely exported from South America and sold on the London market at £10. per ton, whereas the average price of unrefined potassium nitrate is £16. 10s. per ton. The yield of the farms prospected is virtually unlimited, and, while in many of the large kloofs enormous masses of practically pure salt are found, the average in the soil for the whole area may be calculated at 25 per cent. Attention need only be drawn to the working of nitrates in other countries to prove the richness of the most recent South African discovery. Soils containing nitrate of potash are worked in India and Ceylon when containing only 2½ to 5%, and the richest deposits in those countries rarely contain more than 8%, while in Hungary nitiferous soils containing ½ to 2½% are worked at a profit. The Cape deposit is most easily extracted, merely by lixiviation, by hot or cold water, decantation of the clear liquor from the soil into shallow tanks, and evaporation by the rays of the sun, when practically pure nitrate crystallizes out. By this process nitrates on a large scale could be produced at less than £2. per ton, and the cost of transport over 140 miles of country to De Aar, and thence by rail and sea to Europe, is £5. per ton.—*Engineering and Mining Journal*.

LIQUID CARBON DIOXIDE FOR CHILLING TEST PIECES.

WRITING on the use of liquid carbon dioxide for chilling test pieces, especially stone, iron, and steel, at low temperatures, M. Haller says that a cheap and simple form of apparatus in which the test specimens could be cooled would consist of a wooden box with double walls, top and bottom, the spaces between being filled with some non-conducting substance. The liquid gas could be led into such a box from the iron or steel flasks in which it is furnished, and would be deposited in great part in the form of frost at a temperature of about -78 degrees Centigrade. The test specimens could be readily put into and taken from such a box, and would quickly get to a low temperature. One of the Russian railroad companies is on the point of having such an apparatus constructed for testing rails and wheel tyres at low temperatures. The possibility of accomplishing the desired object with such an outfit, viz., the rapid freezing of specimens, was demonstrated by putting a number of iron test pieces into a bag of several thicknesses of coarse cloth and then introducing the liquid gas. This at once became solid, and filled all the spaces between the specimens which thus lay packed in snow. Each specimen was provided with a depression into which mercury could be poured, and on doing this, after a short exposure in the freezing bag, it was found that the mercury immediately solidified, showing, in the absence of a suitable thermometer, that the temperature of the specimens was certainly below -39 degrees C., if not lower. At the St. Petersburg Laboratory of Experimental Medicine a cold room of quite large proportions has been fitted up in which also liquid carbonic acid is the cooling agent.—*Industrie Zeitung*.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of September, 1894, as compared with the same month of 1893:—

ALKALI.				
Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Russia	35,972	30,088	12,296	10,890
Sweden and Norway	19,854	9,436	5,029	1,964
Germany	11,505	13,440	4,850	4,476
Holland	8,358	8,640	1,768	1,928
France	4,803	1,953	1,718	767
Spain and Canaries	21,199	24,762	9,517	11,330
Italy	14,167	17,440	5,626	6,584
United States	125,598	260,439	36,512	59,523
Australasia	13,920	28,805	5,395	8,391
British North America ..	25,794	20,877	8,136	5,009
Other countries	69,573	83,783	23,756	25,732
Total	350,743	499,663	114,603	136,594

BLEACHING POWDER, ETC.				
Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
United States	23,450	51,184	10,031	20,845
Other countries	48,797	63,401	19,881	24,567
Total	72,247	114,585	29,912	45,412

THE FIRTH COLLEGE.

AT the opening of the session at Firth College, Sheffield, recently, an address was delivered by Dr. Fitch on "Provincial University Colleges, their present and future work." In the course of his remarks Dr. Fitch said he looked forward to the federation of all the existing provincial colleges with some great local university; Manchester, Liverpool, Leeds, and Sheffield being affiliated to the Victoria University; Durham and Newcastle to Newcastle; Nottingham and Birmingham as constituents of a Midland University; and possibly another a Western University, of which the new University College of Bristol would be the centre. There was room for at least six or seven universities in England, all seeking to adapt themselves to the special circumstances of their own students, yet all maintaining alike a high standard of general learning and culture. Of one thing he was certain. No college, such as Firth College, could ever develop its full powers or acquire its rightful influence while it stood alone. Incorporation with the Victoria University seemed to him indispensable, not only for its efficiency, but for its dignity. The authority of a single isolated college could never equal that of a chartered university. It was possible for Firth College to retain all that was distinctive in its own ideals and organisation, and yet to obtain a large increase in power as well as academic rank from association with the Victoria University. He understood this was what they were striving for; and there was no need to regret the fact that the end could not be reached all at once. He looked onwards far down in the twentieth century, and he saw Firth College consolidated and strengthened, enriched by the bounty of those who knew its value, forming an integral and influential part of the great Northern University of Victoria, accumulating noble traditions, and sending out year by year a body of young men and women distinguished by high character, by accurate knowledge, by the power to add to the intellectual as well as the material wealth of the world, and by the will to use all their talents and influence with a due sense of responsibility to God and man.

Sir Henry Stephenson moved a vote of thanks to Dr. Fitch, and said no one was more able to speak with authority on the subject of local colleges. The latter part of the address particularly interested him, because he had a strong desire to see Firth College linked with the Victoria University. Until that union was accomplished they would always stand at a very great disadvantage. Sir Henry Stephenson concluded by announcing that when the time came to attempt an affiliation with the Victoria University he should be glad to do his share, and more than his share, in bringing about such a desirable result.

Mr. Bernard A. Firth endorsed everything Sir Henry Stephenson had said, and hoped that before many years the college might be affiliated with the Victoria University. No doubt it meant a large sum of money to come from somewhere, but Sheffield, he thought, would not be behindhand when the right moment came.

OXIDIZING PYRITES WITH SODIUM PEROXIDE.

WRITING on this subject in the "Chemiker Zeitung," C. Glaser states that he has examined the proposal of M. Hoehnel more closely, as it offered a possibility of avoiding the tedious and repeated evaporation with hydrochloric acid to expel nitric acid from melts with carbonate and nitrate. But it was found that the matter was less simple than it appeared at first sight. A series of experiments was instituted, the results of which, in so far as they are conclusive, were as follows:—

1. Pyrites with 41.12 per cent. total sulphur gave, according to Hoehnel's process, only 38.37 per cent. On acidulating the filtrate from the melt, some sulphur was separated out, and a distinct odour of the decomposition products of hyposulphurous acid was recognised. More sodium peroxide was therefore used for the following experiments, at last 5.0 grms. Na_2O_2 to 0.5 gm. pyrites. In order to avoid any loss before acidulation with hydrochloric acid, some c.c. of hydrobromic acid were added, and the liquid was then boiled until nearly all the bromine was expelled. Precipitation with barium chloride then followed in the usual manner. The result was 41.13 per cent. To avoid the destruction of the nickel crucible, it is advisable to heat at first for ten minutes with so small a flame that the mixture in the crucible merely softens and sinters together. It is then heated for fifteen to twenty minutes with a powerful "roaring" burner. If these precautions are observed, the determinations can be effected without notable injury to the crucible. Towards the end it is necessary to heat the melt so strongly that it enters into waving ebullition. When the attempt is made to avoid this, the brown metallic oxides become black on lixiviation by the re-formation of iron sulphide. The examination of the residue on the filter after separate treatment with hydrobromic acid gave each time a notable quantity of barium sulphate; whilst when the mixture is heated to wavy ebullition, the filtrate passes off colourless, and without the use of hydrobromic acid there appeared on acidulation merely a slight separation of sulphur, whilst the residue insoluble in water proved quite free from sulphur. It is therefore necessary to attend to the following points:—(1) Gentle heat at the commencement of the fusion; (2) towards the end ignition to full ebullition; (3) oxidation by means of hydrobromic acid. A determination can be effected in from two to two and a half hours.

Sodium peroxide may be used conveniently for determining the sulphur in burnt ore. Take to 1 gm. burnt ore 0.5 Na_2O_2 and 2.0 grms. Na_2CO_3 , and heat the mass in a nickel crucible with a moderate flame for fifteen minutes. The melt is easily lixiviated, but before acidifying with hydrochloric acid it is recommended to add a few drops of hydrobromic acid. We then precipitate with barium chloride. Watson's method, which Lunge strongly recommends, is not applicable to American ores, but it gives satisfactory results with Spanish pyrites.

THE TALLOW TREE.

THIS tree is variously known as "Tallow-wood" (owing to its greasy nature when freshly cut.) "Turpentine tree," and "Peppermint"—the foliage being remarkably rich in volatile oil. Another local name applied to it is "red shingy-bark" owing to its red fibrous bark. Its botanical name is *Eucalyptus Microcorys*. The term *microcorys* is made up of two Greek words signifying "a little helmet" in allusion to the comparatively small cup of the flower.

An Udupussellawa planter writing to the *Tropical Agriculturist* bears testimony to the fact that "of all Australian trees introduced into Ceylon, the tree which has grown beyond all compare is *E. Microcorys*. A specimen 8 years old" he says, "was 5 ft. 4 inches in girth, and tall in proportion."

The leaves of *E. Microcorys* yield an essential oil, which it is thought may be useful in varnish-making.

The gum is in many respects similar to the "Kino" of *Pterocarpus Marsupium*.

The timber, says Mr. Maiden, the Consulting Botanist to the N. S. Wales Government, is one of the most valuable the Colony produces: it is strong and durable under and above ground.

He mentions that it would be impossible to enumerate the various uses to which the timber can be put—among others being for naves, feloes, spokes, cop, flooring of buildings, decking bridge work in general, pickets, turned pillars, for moulding and architraves, in fact, for all building purposes requiring durability.

An ink has been made by steeping chips of tallow-wood in water for a day or two (presumably in contact with iron.)

Against this timber it may be said that it is liable to attack by white ants, and that it does not hold nails well. On the other hand the charcoal from tallow-wood is thought by some to be one of the best for the smiths, and no timber suffers less by exposure after being cut down.

GAS MANUFACTURE.*

[BY J. J. JOHNSON.]

[T may be stated at the very outset that this is by no means an ancient industry, being first practically applied by William Murdoch in 1792; who it is said, generated coal gas in an iron kettle, and with it illuminated his house at Redruth.

The process is one of breaking up coal into its constituents, and it will, therefore, repay us if we first consider the raw material from which it is obtained. Coal for our purpose may be divided into four classes:

- (1.) Lignite or brown coal, found near Bovey Tracey.
- (2.) Cannel, found in Scotland, Wigan, Derbyshire, &c.
- (3.) Bituminous or caking, found in Durham, Yorkshire, Northumberland, Lancashire, &c.
- (4.) Anthracite, found in Wales, &c.

For the sake of convenience, let us consider coal to be made up of its three essential elements—carbon, hydrogen, and oxygen. The following may then be taken as the typical percentage of each class respectively:—

	(1.)	(2.)	(3.)	(4.)
Carbon	66.31 ..	75.00 ..	78.54 ..	90.88
Hydrogen ..	5.55 ..	7.42 ..	4.81 ..	4.33
Oxygen	28.14 ..	17.58 ..	16.65 ..	4.79
	100.00	100.00	100.00	100.00

Of the four only two, namely, the second and third, are used for gas making. No. 1 contains too much oxygen in proportion to its hydrogen, giving off on carbonizing only steam, acetic acid, and carbon dioxide. No. 4 has in its composition so much carbon, and such a small amount of hydrogen and oxygen, that comparatively little gas is formed, the coal being exceedingly refractory in the retort.

Cannel yields the greatest amount of gas, and that of a high quality, but owing to the bad quality of the residual coke, it is little used (except for enrichment) outside the locality in which the mines occur.

Therefore, the chief kind of coal used in England for the manufacture of coal gas is of the bituminous or caking class, which yields a fair amount of gas, and a good quantity of saleable coke.

The physical properties of cannel are characteristic, being of a dull brownish or black colour, exceedingly brittle, possessing few indications of its various laminae, and generally angular or cubical in structure.

Bituminous or caking coal has a good lustre, is rather soft, shows its laminae plainly, and is fairly cubical in shape.

The early history of coal is too well known to need any comment; and the mining is so well understood that I shall not touch even briefly on the subject.

Further we cannot go without serious consideration. First shale, slate, and iron pyrites, or, as it is sometimes called, brasses, are picked out from the coal; the shale and slate not being worth the carriage, and the pyrites containing a large amount of sulphur which would be driven off into the gas, and have to be removed in purification. The coal is then forwarded to the various gas works and unloaded. It is in this loading, unloading, and carrying, that much harm is done by crushing or breaking up, and getting wet, to which points I shall have occasion to refer later.

It is now placed where it is to be consumed, being stacked in heaps ready to be carried where it is required.

But alas! before consumption takes place another trouble sometimes arises, namely, spontaneous combustion. Until lately, I believe, this action was but imperfectly understood—to be correct, I should say mistaken—and only lately Prof. Lewes, with his highly practical and scientific effectiveness, read a paper on this most important subject.

First, he notices a piece of engine waste soaked, say, for instance, with boiled linseed oil. This was found by Gallety to take fire at ordinary temperatures only after a period of several days; but when heated in a chamber at a temperature from 54 to 76°C. it ignited in one hour 15 minutes. Thus it was found at ordinary temperatures oxidation was slow, but when the necessary temperature was reached it took place at a greatly increased velocity.

Next he considered charcoal; if this be kept in the cylinders where it is produced, away from the influence of the atmosphere, being afterwards powdered, and placed in a heap, it has often been observed to take fire in 30 hours; and heaps of 100 bushels or more treated in the same manner are said to always ignite, due to the rapidity of the absorption of oxygen, which causes the temperature to rise to the point of ignition.

And, lastly, coal when brought to the pit's mouth, rapidly absorbs oxygen by its pores as in the case of charcoal. But, says the author, this is not the main reason of firing, as the point of ignition of coal is much higher than that of charcoal, and the ratios of absorption of charcoal and coal are as 3 to 1.

The real cause is that the oxygen thus absorbed enters into combination with the carbon and hydrogen of the more bituminous portion of the coal, owing to the gas becoming more chemically active after the taking up of oxygen by the pores.

This oxidation causes a rise in temperature which in its turn accelerates the further oxidation of the mass as in the case of the oily waste, till ultimately the point of ignition is reached.

Further, the paper points to the advisability of storing dry coal, as, strange to say, it has been found that wet coal does not absorb oxygen very quickly at first, but after drying does so at a much greater speed.

Therefore Prof. Lewes considers a good coal, fit for storing, should, when air dried in an oven at a temperature of 250° F. for three hours, not increase in bulk more than 2%, or contain a greater quantity of moisture than 3%; and, lastly, that the old theory of the percentage of pyrites being an indication of the liability to spontaneous firing is erroneous and must be discarded.

Storing—This has been known for a long time to depreciate the value of most coals for gas making, and only lately I noticed a manager of large experience questioning whether it would not be better to store coal and keep the same in stock till emergency required it, instead of using coal freight after freight as received, because after a time this deleterious action seems to lessen, and would not therefore perpetuate the great drag on revenue entailed in meeting this source of waste, which is due to the occlusion of nitrogen, marsh gas, and carbon dioxide.

We will now leave the raw material and consider the process of manufacture.

The coal is placed in clay retorts (fitted with air-tight lids) heated to a temperature of 1,700° to 2,200° F., and it is to the more modern methods of heating I wish to draw your attention.

These may be divided into three systems: (1) Direct firing; (2) generator firing; (3) regenerative firing.

Direct firing is the method in which the coke has to be converted into carbon dioxide direct. To do this a large excess of air has to be drawn into the furnace over and above that required for the combustion of the fuel. This air is called "Primary Air."

Generator firing is the name applied to the system in which there is sufficient depth of fuel, and the furnace is constructed in such a manner that all the primary air admitted is converted into carbon monoxide, more air being admitted just above the fuel to oxidise the carbon monoxide to carbon dioxide; thus getting the advantage of a greater amount of heat. This air is called "Secondary Air."

In the regenerative system of firing the same kind of furnace as in the generator is used, but the secondary (and sometimes the primary) air is heated by the waste gases on their way to the chimney, by passing the air through flues, round which the gases are made to pass.

The regenerative system effects a saving in coke of about 50%, when compared with the direct firing method, apart from offering a better control of the heat, absence of flue dust, and less wear and tear in setting. Also, on account of the greater depth of fuel contained, the furnace does not require charging with coke so often, nor is the heat let down so much when clinkering or cleaning.

The heat of the retort drives off the volatile portion of the coal, leaving behind a solid residue of coke.

Before leaving this part of the process, it is desirable to call your attention to a purer form of the preceding element—carbon—which forms on the surface of the heated retort. On account of its purity and hardness it is largely used in the manufacture of electrical apparatus and in casting of the best engineering work. The theory of its formation is the decomposition of ethylene C_2H_4 into marsh gas and carbon, thus: $-C_2H_4=CH_4 + C$.

The vapours and gas now traverse upwards by the ascension pipe through a liquid seal called the hydraulic main, which acts as a valve stopping the gas from coming back on the stokers, while charging the coal into, and withdrawing the coke from, the retorts. From the hydraulic main, along the foul main, passing a liquid seal, the overflow of which disposes of the liquid products to the tar well, the gas itself goes on to the condensers. These generally consist of long lengths of pipe or other medium, erected horizontally or vertically and exposed to the cooling influence of the atmosphere or water in which condensation is effected. Condensation is the bringing of the molecules of the gas into closer contact by abstraction of the heat; thus most of the vapours are condensed into liquids, the gas assuming a more normal and definite volume.

The cooling is effected as gradually as possible, owing to the luminosity depending on certain hydrocarbon vapours which are retained under these conditions, but if the gas is cooled too quickly these hydrocarbons are condensed. It is also an advantage to keep the gas in contact with the light tar and ammoniacal liquor as long as possible, as they absorb some of the sulphur impurities and carbon dioxide.

The gas is now drawn to the inlet of a rotary machine or pump called an exhaustor, driven by a gas or steam engine. This on the one

* A Paper read before the People's Palace Chemical Society.

side exhausts the gas from the retort, and on the other forces it through the various apparatus, overcoming the pressure caused by the obstruction of the materials in use, friction of the apparatus and pipes, and the weight of the gasholders. It is first forced through the tar extractor or washer, which consists of an outer cast-iron shell containing a sealed central passage connected with the inlet. Branching off from the sides of this are a series of $\cap$ shaped pieces with small serrations in their sides, sealed in liquor to the desired depth. Through these the gas has to pass on its way to the outlet, giving up to the strong liquor small quantities of its impurities, depositing its tarry vapours, and losing ammonia. The liquor is run in from a tank overhead, and overflows through seal cap, the tar being drawn away lower down when necessary. Here we have to leave this black viscid liquid, the recapitulation of the properties of which belongs to a description of tar distilling rather than gas making.

The gas now passes to the scrubbers, which are tall cylindrical vessels about five times their diameter in height, packed with $4'' \times \frac{1}{2}''$ boards on edge, with $\frac{1}{2}''$ distance pieces, each tier being laid checkways. On top of this is a layer of brushwood, upon which falls a distributed shower of liquid, forced up by pumps into a spreader or series of sprayers.

The gas takes the opposite course to the liquid, namely, upwards to the top of the vessel, and is divided into minute streams. Coming in contact with the wet surface of the boards and strong ammoniacal liquor, it gives up some of its impurities and ammonia. It then descends by the outlet pipe to the inlet of the second scrubber, where it meets with a more dilute solution of liquor, being here practically freed from ammonia; but containing other impurities as carbon dioxide, sulphuretted hydrogen, and other sulphur compounds (notably bisulphide of carbon), in quantities which vary according to the heat applied in carbonization, amount of impurity in the coal, and the efficiency of the before mentioned condensing and scrubbing processes.

From the scrubbers the liquid ammonia is run off into wells which allows of it being pumped over several times till it is of the strength required by the sulphate of ammonia makers.

(To be continued.)

OLEOMARGARINE TRADE OF ROTTERDAM.

THIS market experienced many and wide fluctuations during the past year, caused in the first instance by moderate stocks in first, and small supplies in second hands, and advancing prices of neutral lard, which circumstances combined to bring about a speculative movement, and prices rose from £2. 16s. 3d. to £3. 7s. 6d. per cwt within a very short period. This resulted in larger shipments from America, and with a sharp decline in the value of lard, coupled with dull markets for butter, prices soon experienced a fall to £2. 12s. 6d. to £2. 11s. 6d. for first and to £2. 10s. to £2. 9s. for second quality, at which rates manufacturers bought freely. The drought, which commenced in April and continued uninterruptedly till the first fortnight in July, caused prices of hay and other fodder to rise enormously, and hence it was feared that butter would become scarce and dearer, and the demand for margarine would thereby be considerably stimulated. Under this impression prices for first qualities advanced to £2. 18s. to £2. 19s., and a further considerable rise was looked for, when suddenly the financial crisis in the United States broke out, and holders of goods were forced to realise, causing values to recede to £2 11s. 6d. to £2 10s. 10d. A further decline was arrested through decreased shipments from America, but business remained quiet and was of little importance, the margarine manufacturers holding ample stocks of the raw material, whilst the strikes in the mining districts in England unfavourably influenced consumption. In October prices rose to £2 19s. 9d., and in December the market closed at £2 15s. 6d., with an upward tendency.

The arrivals from America were as follows:—

Year.	Tierces.
1893	225,100
1892	230,439
1891	189,500
1890	264,000
1889	245,000

The average annual consumption of American oleomargarine for the last five years was 230,000 tierces, or about 4,435 tierces per week.

Neutral lard is also largely imported from America, as shown by the following figures:—

Year.	Tierces.
1893	78,500
1892	111,600
1891	62,200
1890	50,000

RIVER POLLUTION PROSECUTION.

LAST week the Westhoughton Local Board was proceeded against at the Bolton County Police Court on two several charges of permitting and knowingly causing sewage to flow into certain tributaries of the Rivers Mersey and Irwell on June 28 and divers dates between then and July 18. Mr. W. H. Wilson prosecuted on behalf of the Mersey and Irwell Joint Committee, and Mr. Dowling defended. Mr. J. Partington, clerk to the Westhoughton Board, was present.—Mr. Wilson said he prosecuted under the Joint Committee's Act, 1892, and the tributary was the Leigh Hall brook. Since the summonses were issued the Committee had had certain communications with the Local Board. They admitted the offence, and would consent to an order to carry out further works. The position of the Board was this. They had three farms, from two of which they obtained a fairly good effluent, but on the third—Rogers Hall farm—the effluent had been very bad for some time, and the reason principally appeared to be that the land was quite unsuited for broad irrigation. It was composed chiefly of clay land, and sewage simply flowed over it into brooks. The Local Board said they were prepared to proceed to put down efficient precipitation tanks immediately, and to do other matters for obtaining a better effluent on the farm. The Committee did not press the case. They did not doubt the *bona fides* of that Board, and he asked for an order that the Board should construct such works as would prevent the pollution of the streams within nine months of that date. He believed the works could be done in six months, but the Board would have to apply to the Local Government Board for borrowing powers, and therefore they asked for the longer period.—Mr. Dowling remarked that the Board were earnestly desirous of complying with the desires of the County Council, and had passed a resolution to that effect, but they also wanted to do it without an undue expenditure of the ratepayers' money.—A fine of £2. 10s. and court fees was imposed in each case, and an order was made that the works be completed within nine months.

THE NEW SODIUM NITRATE DEPOSITS OF COLUMBIA.

THROUGH the courtesy of the *Panama Star and Herald*, we have been able to obtain the following additional information concerning the discovery of deposits of sodium nitrate in the Colombian States. The deposits were found in the Department of Magdalena, extending over a very wide area, and as regards quality and appearance the Colombian nitrate is said to closely resemble the Chilean. It is asserted, indeed, that the deposits possess certain advantages that will allow of their competing very successfully with the Chilean nitrates.

The discovery was made by M. C. F. Z. Caracristi, in the neighbourhood of the Sierra Nevada de Santa Marta, and his investigations, of which the results have lately been published, seem to place the value of these new deposits beyond question. So far, it is known that the nitrates extend over a district of seventy-five square kilometres, but it is believed that they will be found to be quite as extensive as the deposits of Chili. The layer of mineral, which has a thickness of from thirty centimetres to three metres, has been cut through at depths varying from 2.40 metres to 6 metres. It is covered by a stratum composed of sulphate of calcium, oxide of iron, and other minerals, while underneath is a layer of sandstone, which has prevented the nitrates from sinking through the lower strata. Being so thoroughly protected the mineral is found occasionally in a pure state, in the form of crystals, in which the percentage of nitrate is about 24 per cent., the other elements being chloride of sodium and insoluble silicates. These crystals, however, compose a small part of the deposits, and the mineral available for working contains from 11 to 12 per cent. of nitrates. The other constituents are carbonate of calcium, sulphate of calcium, and silicates. It will be seen, therefore, that the mineral is a very valuable agent for fertilizing purposes, and if worked upon an extensive scale is sure to be in large demand.

Of course it is impossible at the present moment to give an accurate estimate of the amount of nitrates available for working, but an engineer, who lately arrived in the country with a view of ascertaining the richness of the deposits, is of opinion that at least 7,380,000 tons of mineral can be produced. Besides nitrates, any country undertaking to develop this territory could make a considerable profit out of the enormous quantities of iron pyrites that are to be found in the adjoining district. These pyrites are said to contain more than 42 per cent. of sulphur. In view of the splendid returns that are likely to result from the investment of money in the nitrate industry of Columbia, these new fields, from which the most satisfactory returns are to be expected, should not fail to attract the notice of American and European capitalists.

One of the principal advantages of the nitrate field of Columbia is its favourable situation for transport. The mineral lies at a distance of about 65 miles from the town of San Juan de la Cienaga, and some of it is to be found in the basin of the San Sebastian River, which, by means of the Cienaga Grande Lake, is in direct communication with the sea. Certainly, some work would be necessary to make the waterway navigable the whole length of its course, but it is estimated that this could be done for something like £1,000. As regards railroad transport also, exceptional facilities will be afforded for the conveyance of the mineral to the port of shipment. When the line from Santa Marta is completed it will pass within half a mile of the nitrate fields and, as the railroad is already laid down as far as Rio Frio, it only remains for another 62 miles to be constructed."

ANSWERS TO CORRESPONDENTS.

- C. C.—It has been returned.
 E. AND Co.—We are writing you upon the matter.
 A. F.—Thanks for letter. We should like confirmation before 30th inst.
 F. FILS.—We have not received the number up to now, and await the same.
 J. R. D.—We have done as you desired.
 W. B. AND Co.—Thanks for communication.
 T. Y.—We have the first part in hand.
 L. L. (Nantes).—Issue 300. German only.

NOTICES.

LONDON AGENTS

Booksellers and Newsagents may now obtain supplies of

"THE CHEMICAL TRADE JOURNAL"

From

MR. JOHN HEYWOOD,

2, Amen Corner,

On usual trade terms.

Paternoster Row, E.C.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

THE DANGERS OF ICE CREAM.—The scare which has recently been raised in connection with this matter is not wanting in support from direct evidence as to the possible dangers of eating common ice cream. A year or two ago Dr. George Turner, acting for the London County Council, traced the origin of an extensive outbreak of typhoid fever in South London to ice creams made in the borough, and quite recently Dr. Campbell Munro has traced an epidemic of the same disease involving 800 persons in Mid-Renfrew, to ice creams made from specifically contaminated water. There appear to be good reasons therefore for something being done to regulate and control this trade.

CHLORINE AS CHLORATE IN SALTPETRE.—A sample of saltpetre (which gave indications, when tested directly, of being almost free from chloride), was recently tested by A. Hellich for bromate by deflagrating a mixture of the salt with sugar, extracting the residue, acidulating and precipitating with silver nitrate. In spite of the previous proof of the absence of chloride in the original saltpetre, the product of deflagration yielded a precipitate of silver chloride. That this chloride was not derived from any impurity in the sugar was proved by deflagrating the saltpetre with starch, cotton-wool, and sulphur instead of sugar, a precaution which did not prevent the occurrence of a notable reaction for chlorine in the deflagrated mass. When the saltpetre was heated alone, at a temperature not much above its fusing-point for a few minutes, no chlorine reaction was developed; but after stronger and more prolonged heating chlorine as chloride could be detected. As the chlorine does not exist as chloride until the saltpetre has been heated, it has been thought that it exists as perchlorate, which, in samples giving the reaction strongly, may exist to the extent of 0.25 per cent. The occurrence of this impurity appears to be common even in "chemically pure" specimens.

TIPS FOR TRADERS.

SALT is being produced in India in increasing quantities, and is steadily displacing the imported article. This is attributed to the cheapness with which Indian salt can now be placed in districts where formerly it could not compete with the imported article despite its high price. Notwithstanding the additional salt duty the consumption is increasing. The total output last year was 1,251,837 tons, an increase of 19,000 tons compared with the previous year.

SALTPETRE however, since India no longer enjoys a monopoly, has ceased to be as important a mineral as formerly. Competition in Europe and America, combined with the crude methods of production, has greatly damaged this industry, though the manufacture of saltpetre is still carried on.

TANNING as an industry, is in its infancy in Mexico, but is being developed. The largest Mexican tanneries are located near Mexico while a few tanneries exist in the Northern and Eastern States.

MANGANESE mining in Southern Russia is growing rapidly. Last year the manganese beds yielded 4,739,933 poods, compared with 1,795,580 poods in 1892. [A pood equals 36 lbs. avoirdupois.]

PETROLEUM, which some time since was discovered in Cuba, is still being obtained in the locality. The labour of production is said to be small, and the proximity of the port of Manzanillo affords great facilities for transport.

SUPERPHOSPHATE works and nitrate of potash factories in Chili are thought desirable by the Chilean Ministry. To encourage the establishment of these and other works for the manufacture of ice, paper, and matches, the Ministry have approached the National Society of Agriculture, Mines, etc., to obtain subsidies of from £5,000. to £10,000. per annum for these industries.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

DIVI DIVI, and all kinds of dyewood imported into Curacao, are now subject to a duty of one-half per cent. *ad valorem*.

BARYTES SULPHATE imported into Switzerland, whether ground, washed, or as paste, is dutiable at 80 cents per quintal. In the crude state it is admitted *duty free*.

ANTIMONY OXIDE is also subject to a duty of 1 franc per quintal.

ETHYL CHLORIDE likewise has a duty of 2 francs per quintal imposed.

MANGANESE in the crude state is admitted *duty free*.

PHOSPHATE OF LIME, obtained in the manufacture of gelatine, and known as precipitated phosphate and used as a manure, is admitted into France *free from duty*.

SULPHURIC ACID, sulphurous acid, carbonic acid, sulphydric acid, phosphoric acid, hypophosphoric acid, hydrofluoric acid, hydrofluosilicic acid, nitric acid, muriatic acid, nitromuriatic acid, and any other mineral acids not classified as anhydrous, or in solution at whatever degree of concentration, can now be imported into Guatemala, in any kind of common receptacle, at 5 cents per kilogram gross weight, instead of 15 cents as formerly.

REGISTRATION OF DEBENTURES—Representations have been made to the Board of the Manchester Chamber of Commerce that in recent years the power of issuing debentures has been used by some limited companies in such a way as to defraud their creditors. With a view to preventing this evil Sir Albert Rolit introduced into Parliament last session a short Bill providing for the registration of debentures in the same manner as bills of sale are required to be registered, so that the existence of debenture holders with a prior charge on the assets of a company may be within the knowledge of the mercantile community. It is the intention of the promoter to reintroduce the Bill in the ensuing Parliamentary session, and the support of the Manchester Chamber of Commerce was desired. The Correspondence and Finance Committee had considered and approved the principle of the Bill, and had recommended the Board to take into consideration any amendment that might be made from time to time before finally reporting. The Board confirmed the approval of the Committee, and accepted its recommendation.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending September 29th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'35	9'6	0'31	Nil.
South Metropolitan Gas Co.	6	16'51	10'45	0'43	Nil.
Commercial Gas Co.	2	16'3	7'9	0'5	Nil.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended Oct. 11th, 1894, has averaged 13'80 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Sept. 1894.	Oct. 1894.			Weight.	Volume.
Meadow Lane....	18, 27.	1, 11.	12'87	0'86	65'20	'08
New Wortley	20, 26.	6, 9.	15'63	1'20	48'90	'06
York Street	21, 25.	4, 10.	10'79	0'92	57'05	'07
Average at Works	..	..	13'80	1'02	57'05	'07
Average at East Parade	..	..	13'29	1'09	57'05	'07

During the month the average illuminating power of the Leeds Gas tested at 16, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 hole, 17'9; and standard batswing, 18'4.

THE ELIMINATION OF NITROGEN COMPOUNDS FROM VITRIOL BY MEANS OF SULPHATE OF AMMONIA.

A recent number of the *Zeitschrift für Angewandte Chemie* contains a valuable contribution by Lunge and Abenius on the above subject. The authors conducted a series of experiments upon vitriol of 1'84 sp. gr., and 1'71 sp. gr. corresponding to the ordinary rectified sulphuric acid and the ordinary brown vitriol of commerce.

In both cases they found that boiling only removed a comparatively insignificant percentage of the nitrogen compound, but that if this latter existed in the form of nitrous acid or of nitrosyl sulphate, the addition of one molecule of ammoniacal nitrogen to one molecule of nitrous nitrogen caused a complete elimination of the latter when the temperature of the vitriol was raised to boiling point, and ebullition was maintained for five minutes.

When the nitrogen compound exists in the form of nitric acid the case is considerably different. From vitriol of 1'84 sp. gr. one molecule of ammoniacal nitrogen will eliminate one molecule of nitric nitrogen, but at least half-an-hour's boiling is required to effect the decomposition. The removal of nitric acid from brown vitriol is a task of much greater difficulty. The authors found that even if the boiling were prolonged for many hours, such an enormous excess of ammonium sulphate was required to effect the decomposition, as to remove the process from the range of practical politics. This has a most important bearing upon the rectification of vitriol in platinum, as it shows the absolute necessity for avoiding the presence of nitric acid as such in the acid to be rectified. The presence of this impurity can be detected by brucine even in the presence of nitrous compounds.

It would be interesting to hear how far the results of the above experiments corroborate the experience of practical vitriol makers. We have before us a case where a solution of sulphate of ammonia used to be run into the chamber acid as it entered the lead evaporating pans, and the resulting brown vitriol was entirely free from nitre. This does not conflict with any of the above results. On the other hand we have known of a case where a small quantity of sulphate of ammonia was put into each rectifying retort when filling, and the practice was discontinued, as the elimination of the nitrogen compounds was not effected.

"SOLVAY" PIG IRON.—The Solvay Process Company, of Syracuse, N.Y., has purchased the blast-furnace plant of the Onondaga Iron Company, which has not been in operation for several years. The Solvay company will utilise the plant for its own manufacture.

TABLE FOR THE COMPARISON OF THERMOMETERS.

C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.	C.	R.	F.
-10	-8'0	14'0	20	16'0	68'0	50	40'0	122'0	80	64'0	176'0	120	96'0	248'0
-9	-7'2	15'8	21	16'8	69'8	51	40'8	123'8	81	64'8	177'8	122	97'6	251'6
-8	-6'4	17'6	22	17'6	71'6	52	41'6	125'6	82	65'6	179'6	124	99'2	255'2
-7	-5'6	19'4	23	18'4	73'4	53	42'4	127'4	83	66'4	181'4	126	100'8	258'8
-6	-4'8	21'2	24	19'2	75'2	54	43'2	129'2	84	67'2	183'2	128	102'4	262'4
-5	-4'0	23'0	25	20'0	77'0	55	44'0	131'0	85	68'0	185'0	130	104'0	266'0
-4	-3'2	24'8	26	20'8	78'8	56	44'8	132'8	86	68'8	186'8	132	105'6	269'6
-3	-2'4	26'6	27	21'6	80'6	57	45'6	134'6	87	69'6	188'6	134	107'2	273'2
-2	-1'6	28'4	28	22'4	82'4	58	46'4	136'4	88	70'4	190'4	136	108'8	276'8
-1	-0'8	30'2	29	23'2	84'2	59	47'2	138'2	89	71'2	192'2	138	110'4	280'4
0	0'0	32'0	30	24'0	86'0	60	48'0	140'0	90	72'0	194'0	140	112'0	284'0
1	0'8	33'8	31	24'8	87'8	61	48'8	141'8	91	72'8	195'8	142	113'6	287'6
2	1'6	35'6	32	25'6	89'6	62	49'6	143'6	92	73'6	197'6	144	115'2	291'2
3	2'4	37'4	33	26'4	91'4	63	50'4	145'4	93	74'4	199'4	146	116'8	294'8
4	3'2	39'2	34	27'2	93'2	64	51'2	147'2	94	75'2	201'2	148	118'4	298'4
5	4'0	41'0	35	28'0	95'0	65	52'0	149'0	95	76'0	203'0	150	120'0	302'0
6	4'8	42'8	36	28'8	96'8	66	52'8	150'8	96	76'8	204'8	152	121'6	305'6
7	5'6	44'6	37	29'6	98'6	67	53'6	152'6	97	77'6	206'6	154	123'2	309'2
8	6'4	46'4	38	30'4	100'4	68	54'4	154'4	98	78'4	208'4	156	124'8	312'8
9	7'2	48'2	39	31'2	102'2	69	55'2	156'2	99	79'2	210'2	158	126'4	316'4
10	8'0	50'0	40	32'0	104'0	70	56'0	158'0	100	80'0	212'0	160	128'0	320'0
11	8'8	51'8	41	32'8	105'8	71	56'8	159'8	102	81'6	215'6	162	129'6	323'6
12	9'6	53'6	42	33'6	107'6	72	57'6	161'6	104	83'2	219'2	164	131'2	327'2
13	10'4	55'4	43	34'4	109'4	73	58'4	163'4	106	84'8	222'8	166	132'8	330'8
14	11'2	57'2	44	35'2	111'2	74	59'2	165'2	108	86'4	226'4	168	134'4	334'4
15	12'0	59'0	45	36'0	113'0	75	60'0	167'0	110	88'0	230'0	170	136'0	338'0
16	12'8	60'8	46	36'8	114'8	76	60'8	168'8	112	89'6	233'6	172	137'6	341'6
17	13'6	62'6	47	37'6	116'6	77	61'6	170'6	114	91'2	237'2	174	139'2	345'2
18	14'4	64'4	48	38'4	118'4	78	62'4	172'4	116	92'8	240'8	176	140'8	348'8
19	15'2	66'2	49	39'2	120'2	79	63'2	174'2	118	94'4	244'4	178	142'4	352'4

Trade Notes.

CATALOGUE OF ESSENTIAL OILS.—By an oversight in our review of this catalogue last week we omitted to mention that the book is being sold in this country by Messrs. H. Grevel and Co., 33, King-street, Covent Garden, W.C. The price is 5s.

UNITED STATES TARIFF, 1894.—Copies of Messrs. Vandergrift's compilation of this new tariff can be had in this country by applying to Mr. Effingham Wilson, 11, Royal Exchange, London, E.C., to whom all enquiries for this book should be addressed.

A NAPHTHA SPRING ON FIRE.—A terrible fire has occurred at Grosny, near Tiflis. A large naphtha spring ignited, and the flames spread in a moment to the neighbouring buildings. Seventeen workmen were engulfed in the sea of fire and perished.

THE SALE OF CHILIAN NITRATE GROUNDS.—Among the purchasers of the nitrate grounds sold by the Chilean Government as announced last week were two London companies—the new Tamarugal Company and the Rosario Company. Altogether £660,000 was invested by European capitalists.

FOREIGN SUGAR SYNDICATES.—The arrangements relative to the Russian sugar syndicate, which exists for the purpose of regulating production and export, have been renewed for four years. Negotiations are again open between the Austrian sugar manufacturers for the purpose of forming a new syndicate.

THE CYANIDE ROYALTY IN THE TRANSVAAL.—The African Gold Recovery Company, Limited, announce the receipt of a cable stating that under Government intervention an arrangement has been arrived at fixing the rate of royalty at $3\frac{1}{2}$ per cent. in the Transvaal, combined with an extension of the patents for five years, and the party to the litigation calling in question the patent, consenting to judgment of validity.

POLLUTION OF THE RIVER DEE.—Information was received in Chester, last week, of serious poisoning of the River Dee, involving the destruction of fish for a distance of over twelve miles. The first point of pollution is Cefn Brook, Denbighshire, and from this downwards salmon, trout, dace, roach, and eels are cast up dead by hundreds. The Fishery Board are making diligent investigation into the matter.

A TECHNICAL REVIEW.—The *Engineering Magazine* of New York in the October number has inaugurated a "Review of the Industrial Press." This is a development of the Technical Index formerly current with this magazine. Under various headings the more important technical articles are briefly reviewed, while at the end of each section, a list of all articles of interest on relevant matters is placed. As it is the review will prove of great assistance to technologists, and when developed gives promise of becoming an important factor of the technical press.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products have been subject to one or two changes during the week. Benzols are rather firmer: 90's now being quoted 1s. $2\frac{1}{2}$ d. to 1s. 3d., and 50/90's 1s. 2d. to 1s. $2\frac{1}{2}$ d. In carbolic acid, however, there has been a tendency to weakness, though prices remain unaltered for 60% crude at 1s. $6\frac{1}{2}$ d., and for 40% crystals at $5\frac{1}{4}$ d. Crude naphtha keeps steady at $5\frac{1}{4}$ d., but solvent is a fraction cheaper again: value to-day being quoted 1s. $2\frac{1}{2}$ d. Creosote and anthracene are steady. Pitch keeps firm on the East Coast, with spot values a trifle easier: 4s. per ton being value for prompt, f.o.b., and 38s. to 40s. for 1895.

There has been a marked improvement in sulphate of ammonia, and prices have advanced. Consumers are on the market, so that the spurt is not merely due to the covering of "bears." For prompt, sulphate is by no means plentiful, still the result of the increased production in Scotland has yet to be seen. Current quotations are:—Beckton £12. 12s. 6d., London outside makes £12. 10s., Liverpool £12. 10s., Hull £12. 10s. to £12. 12s. 6d., and Leith £12. 10s.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron firmer: Scotch warrants closed at 42s. 6d., Middlesbrough 35s. $6\frac{1}{2}$ d. cash, and hematite 43s. 6d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £40. 15s. to £41. cash, and £41. 2s. 6d. to £41. 7s. 6d. three months. Tin dearer. Straits closed at £68. 5s. to £68. 15s. cash, and £68. 12s. 6d. to £69. 2s. 6d. three months. Australian, £68.

10s. English ingots, £71. to £71. 10s. Lead: Spanish, £9. 16s. 3d. English, £9. 17s. 6d. to £10. Silesian spelter, ordinary, £15. to £15. 2s. 6d. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 10s. Copper shares quiet: Cape, $1\frac{1}{8}$ to $1\frac{1}{4}$; Copiapo, $1\frac{3}{4}$ to $1\frac{7}{8}$; Libiola, $3\frac{1}{4}$ to $3\frac{1}{2}$; Mason and Barry, $1\frac{3}{4}$ to $1\frac{7}{8}$; Rio Tinto, $14\frac{3}{4}$ to $14\frac{7}{8}$; Tharsis, $4\frac{1}{4}$ to 5.

REPORT ON MANURE MATERIAL.

During the week the market has been quiet, and prices remain very much as last reported. Shippers of 75/80% Florida phosphate rock seem inclined to advance their prices for 1895 steamer shipments, but buyers do not follow this lead. South Carolina River rock, Peace River Rock, and Algerian offer freely at recent quotations, and it is reported that a fair business has been done. There is nothing fresh to report in River Plate bones to United Kingdom, but sales to Continent have been made at full prices. To United Kingdom £4. 11s. 3d. would have to be paid for any cargo of handy size, but for large cargoes under £4. 10s. would very likely have to be accepted. Crushed Kurrachee bones, for forward shipment, offer at £4. 12s. 6d. ex quay Liverpool or ex ship Hull, and Bombay bone meal at £4. 13s. 9d. per ton. Common grinding bones are worth about £4. 7s. 6d. ex quay Liverpool. Nitrate of soda is somewhat firmer, the cargoes recently arrived at ports of call having been removed. Due cargoes are worth about 8s. 10d. per cwt., and later shipments 9s. to 9s. 14d. per cwt., according to position. On spot fine quality may be had at 8s. 10d. per cwt., and ordinary quality to arrive per steamer at 8s. 9d. per cwt. River Plate dried blood selling at 12s. 9d. per unit, ex quay Liverpool.

HULL PAINT, OIL, AND COLOUR REPORT.

WEDNESDAY.

OILS.—Business remains quiet and inactive. Prices of all oils have a tendency downward with the exception of linseed oil, which is very firm. This in a measure may be attributable to the low price of cake and the Americans buying seed here. They are also continuing their inquiries for further supplies. The principal imports into Hull are: Linseed, 465,711 quarters, against 326,235 quarters; rapeseed, 108,071 quarters, against 51,157 quarters; cottonseed, 134,166 tons, against 126,553 tons; olive oil, 18,555 casks, against 8,436 casks; rape oil, 6,370 casks, against 5,816 casks; oilcakes, 14,299 tons, against 15,761 tons; tallow, 24,155 cwt., against 29,320 cwt.; bones, 5,658 tons, against 3,596 tons; turpentine, 15,195 barrels, against 14,557 barrels; tar, 15,645 barrels, against 9,911 barrels. Linseed oil closes firm at 20s. 3d. to 20s. $4\frac{1}{2}$ d. naked spot, month worth 20s.; November-December 19s. 9d. buyers, and January-April, 19s. $7\frac{1}{2}$ d. buyers; boiled and refined ditto from £1. to £2. per ton extra; casks, 17s. 6d., barrels 25s. per ton extra. The export for the week has been 1,120 cwt. Refined cotton oil on the spot has again declined about 10s. per ton, the market closing with buyers at 17s. 6d. naked. November-April done at 17s. 3d., but sellers are now asking $1\frac{1}{2}$ d. to 3d. per cwt. advance. Export of refined for the week has been 1,640 cwt. Rape oil remains flat. "Vegaline," the new vegetable butter, white and neutral, £30. per ton. Castor oil quiet and unchanged. Turpentine, 21s. 9d., in barrels. Olive oil in better request, from £31. per tun. Soft soap, 14s. 6d. per cwt.

CAKES.—Linseed cakes quiet but steady: 95% pure, £6. 12s. 6d. to £6. 15s.; Russians, £6. 2s. 6d. to £6. 12s. 6d.; oilcakes, £5. 12s. 6d. to £5. 15s. Cotton cakes: Rather more orders, but the output is curtailed by the relatively high price of seed and low price of oil, rendering the crushers' margin inadequate. With all feeding stuffs so cheap, however, the cakes cannot be much dearer. Tone steadier. Best makes, £3. 12s. 6d. to £3. 15s. per ton.

PAINTS.—Business quiet; still manufacturers keep fairly well employed. Dry colours: Venetian red, £3. 15s. per ton; oxide of iron, from £7. to £18. per ton; yellow ochre, £3. 15s. per ton; mineral black, £3. 15s. per ton; blue black, £4. per ton. Black varnish for ironwork, etc., £5. 10s. per ton. Putty, £6. per ton.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is a better feeling generally in the market, and business is more active in all kinds of alkali, especially for export. For caustic soda nearest spot values may be taken as follows, viz.:—77%, f.o.b. Tyne, £10. 12s. 6d.; f.o.b. Liverpool, 74%, £9. 10s.; 70%, £8. 10s.; 60%, £7. 10s. per ton, in 10-ton lots and upwards. Prices are 5s. per ton higher or lower than these quotations for special markets. Ammonia alkali, 58%, £3. 2s. 6d. makers' works, bags, and £3. 10s. casks, f.o.b. Soda cry-

stals still neglected, and selling at low rates in all districts. Bleaching powder £7. 10s., f.o.r. makers' works; and £7. 10s. to £7. 15s. per ton f.o.b. Liverpool. Lower prices, however, are taken for the Continent. Chlorate of potash 5½d. to 5¾d. per lb., soda 6¾d.; business both for prompt and forward is rather quiet in these articles. Saltcake without improvement meantime, but there is a general expectation of better prices for forward delivery. Spot value in bulk 12s. to 17s. 6d. per ton at makers' works, according to locality. Sulphur without improvement at £3. 12s. 6d., rails, makers' works. Sulphate of copper £14. 10s. to £14. 15s. per ton in quantity. White powdered arsenic in active demand at £14. 2s. 6d. to £14. 5s. net f.o.r. Garston. Potash, caustic and carbonate, is selling freely at current rates. Acetates of lime are quoted at slightly easier rates for spot delivery. White acetate of lead irregular at £24. 10s. to £25. per ton c.i.f. Other acetates are without change meantime. Acetic acid, 40%, 10s. 9d. to 11s. per cwt. Prussiate of potash continues in good request at 10d. to 10½d. per lb. Aniline oil and salt are firm, and stocks have been much reduced. Carbolic acids, liquid and crystal, are extremely dull. There is good enquiry for superphosphates of lime and other fertilizers, as usual at this season, and prices are firm. Superphosphate lime, 26% to 28%, £2. 7s. 6d. per ton. Borax crystals, £20. per ton. Permanganate of potash is still ruling at extremely low figures, 54s. to 55s. per cwt. being nearest spot value to-day.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Both caustic soda and sulphate of copper are reported as nominally easier; but, so far, there appears to have been no positive break-away from the rates for some weeks prevailing. Chlorate of potash has made a further definite step downwards, and is now procurable at 5¾d. Chemicals whose chief Continental market is Russia, have had during the week a final spurt of shipment off, to save passage before the frost bars the way, but this particular class of demand is now done with for the season.

Sulphate of ammonia is reported as having experienced a sort of spasmodic return of better times, and to have been done at a jump upwards for immediate delivery, but in no quarter of the market is this regarded as more than a passing effect. Nothing whatever is being concluded on the forward basis.

Still the most active section here in Scotland is that of mineral oils and solid paraffins. Lubricants and paraffin wax are both slightly dearer, while paraffin spirit at the old price is very strong.

Chief prices current are:—Soda crystals £2. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 15s., 70/72° £8. 12s. 6d., 60/62° £7. 12s. 6d.; and cream 60/62° £7. 10s., all nett, Liverpool; bleaching powder, £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¾d. less 5%, Liverpool; nitrate of soda, 1½d.; sulphate of ammonia, £12. 5s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 15s., to £4.; 885° £4. 10s. to £5., and 890/895° £4. 5s. to £5. 10s. Week's imports of sugar at Greenock were 8,772 bags cane.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there has been a fair business doing, and with the last of the season's sailings to Russia, shipments have been very good. Soda crystals, £2. per ton, gross weight. Caustic, 76/77%, £10. 5s.; 70%, £8. 10s. Sulphur scarce, at £3. 17s. 6d.

Bleaching Powder, softs, £7. 5s. per ton, nett; hard, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 5s. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw.,

£4. per ton, nett; soda crystals, casks, £2. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 5¾d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 9s. 6d. per ton, f.o.b. Tees; with heavy exports.

COALS.—Trade is rather irregular, and prices a shade easier. Best Northumbrian steam, 10s. 6d. to 10s. 9d. per ton; second quality, 9s. 6d. to 9s. 9d. per ton; small steam, 4s. 6d. per ton; gas coals, 7s. 3d. to 8s. per ton; coke, 13s. 6d. to 14s. 6d. per ton.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet but steady. There is only a small quantity offering and business is restricted to Lagos at £23. for next month, and Cameroon at £21. 5s. transit. The price of olive is unaltered, values ranging from £30. to £38. per tun, according to quality. Linseed is firm, and prices for Liverpool makes in export casks remain at 22s. to 22s. 6d. per cwt. There has been a fall of 9d. in cottonseed, which is now steadily quiet, at 20s. to 20s. 6d. per cwt. Castor oil is steady, with a slightly easier tendency. Good seconds Calcutta are quiet at 2½d., and first pressure French is selling at 2½d. to 2½d. per lb. The demand for tallow is but poor. North American, 24s. 6d. to 25s. Resin is firm, especially for fine and medium. Common is quoted 3s. 7½d.; medium, 4s. 3d. to 6s. 6d.; fine, 7s. to 9s. per cwt. Spirits of turpentine have improved, and 21s. 6d. is now the price, with a fairly good demand. Petroleum is in better demand. American, 4¼d. to 5½d., and Russian refined, 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

New Companies.

Henry Parr and Sons, Limited.—CAPITAL, £5,000., in shares of £1. each. This Company has been formed to acquire the business of paper manufacturers in all its branches now carried on at the Besley Paper Mills, Redditch, Worcester, under the style of Henry Parr and Sons, and to carry on the said business.

W. S. Holland and Co., Limited.—CAPITAL, £2,000., in shares of £1 each. This Company has been formed to take over the business now carried on under the style of W. S. Holland, at Manchester, and to trade as drysalers, paint, varnish, oil, and mineral mixers and manufacturers.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Apparatus for Cooling or Absorbing Gases. A. Müller. 19,085. Oct. 8.
Apparatus for Extracting and Purifying Sulphur Oils and other Substances. R. Tervet Jnr. 19,087. Oct. 8.
Process for the Production of Ozone. J. T. Donovan and H. L. Gardner 19,127. Oct. 9.
Improved Process of Treating Peat. A. McLean. 19,166. Oct. 9.
Preventing Boiler Incrustations. G. L. F. Edeline. 19,169. Oct. 9.
Treatment of Natural Phosphates. D. Levat. 19,174. Oct. 9.
Improved Manufacture of Chlorate of Soda. T. T. Best and J. Brock. 19,189. Oct. 9.
Apparatus for Separation of Mineral Slimes. G. H. Lloyd. 19,231. Oct. 10.
Concentrating, Sorting and Separating Minerals. G. H. Lloyd. 19,232. Oct. 10.
Smokeless Explosives. G. Hübner. 19,299. Oct. 11.
Utilizing Purple Ore and other Oxides of Iron. T. Twynham. 19,394. Oct. 12.

Limestone Burning Kilns. H. Parry. 19,396. Oct. 12.
 Separating Wool Grease and Alkali from Wool Washers' Waste
 Liquors. R. B. Gow. 19,463. Oct. 13.
 Improved Filter Beds for Separating Sludge from Sewage. Dyers,
 Bleachers, and other Manufacturers' Waste Liquors. H. L. Hinnell.
 19,482. Oct. 13.
 Improved Evaporator for Obtaining Common Salt, etc. T. Scott and
 the Patent Salt Co., Limited. 19,488. Oct. 13.
 New Aluminium Alloy. H. G. Partin. 19,510. Oct. 13.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

J. & HILL and E. G. FAHER, iron manufacturers, the Newport Rolling Mill,
 Middlesbrough, under the style of John Hill and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

SPOOR, JOHN LAMB, Higham and Borstal, Kent, cement manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.					
Week ending October 13th.					
Acetic Acid—		8	Anderson, Weber, & Smith	Saffron	
Holland, 37 pkgs.	Beresford & Co.	3	Phillipps & Graves	Spain, 1 pkgs.	Richardson, Spence & Co.
" 95	A. & M. Zimmermann	10	Beresford & Co.	Shumac	
" 40	Lucas & Spencer's Wf.	6	M. D. Co.	Italy, 100 pkgs.	A. E. Piggott
Acetone—		6	T. H. Lee	" 1,250	W. Shelcott
Holland, 102 pkgs.	Beresford & Co.	1	T. Palmer	" 100	J. Kitchen, Ltd.
" 6	A. & M. Zimmermann	5	S. Lambert & Co.	" 100	Union L. Co.
Alkali—		2	Hill & Hartridge	" 50	W. Barter & Co.
Germany, 24 pkgs.	L. & I. D. Jt. Co.	Citric Acid—		" 164	J. E. Scott
Ruhrort, 2,000 c.	R. Waters	Italy, 2 pkgs.	B. & F. Wf. Co.	" 14	J. Knill & Co.
Alum—		Copper Sulphate—		" 150	Harrold Bros.
Holland, 156 pkgs.	Oblenschlager Brs	U. States, 174 pkgs.	Williams, Torrey, & Co., Ltd.	Tanner's Bark	
" 15	Page, Son, & East	Cream of Tartar—		U. States, 13 t.	J. Graves
Aniline Salts—		Italy, 27 pkgs.	Howards & Sons	Natal, 1	L. & I. D. Jt. Co.
Germany, 5 pkgs.	L. & I. D. Jt. Co.	France, 10	W. C. Bacon & Co.	Belgium, 16	Leach & Co.
Antimony Ore—		" 7	London & W. Eng.	U. States, 17	Lindsay, Bird & Co.
France, 74 t.	Kleinwort, Sons, & Co.	" 5	Veast Co.	Germany, 17	City Coml. Wf., Ltd.
Chili, 17	H. Bath & Son	" 5	F. C. Devon & Co.	Turmeric	
Portugal, 50	J. Bamber	" 12	M. Ashby, Ltd.	E. Indies, 20 pkgs.	Co-op. Lightge. Association, Ltd.
Asbestos—		" 5	B. & F. Wf. Co.	Valonia	
Canada, 4312	W. Byford	Spain, 18	C. Christophersen & Co.	A. Turkey, 80 t.	Higgins & Clarke
U. States, 259	G. Ward & Sons	" 10	W. C. Bacon & Co.	" 7	J. Graves
France, 85	W. Byford	Holland, 15	Kirkpatrick & Co.	Farina—	
Italy, 850	J. Knill & Co.	Dextrine—		Germany, 100 pkgs.	C. Tennant, Sons, & Co.
" 300	London Asbestos Co.	Germany, 12 pkgs.	W. Burton & Sons	" 100	Prop. Scott's Wf.
" 144	Capt. Cunningham	" 102	Pronk, Davis, & Co.	Holland, 50	Dunlop Brs. & Co.
France, 14	Mory & Co.	Dye-stuffs—		E. Indies, 152	J. Knill & Co.
U. States, 40	Bolling & Lowe	Annatto		Germany, 324	Prop. Bull Wf.
Italy, 250	Cape Asbestos Co.	E. Indies, 4 pkgs.	Brown & Elmslie	Glucose—	
" 500	British Asbestos Co.	Argols		Germany, 75 pkgs.	627 c. J. H. Epstein
Barium Chloride—		Italy, 618 pkgs.	Thames S. T. & L. Co., Ltd.	" 460	460 c. Oblenschlager Brs.
Germany, 10 pkgs.	Petri Brs.	Cochineal		" 50	403 Pillow, Jones & Co.
Barytes—		Canaries, 20 pkgs.	J. W. Borland	" 14	105 J. Knill & Co.
Holland, 22 cks.	S. H. Willoughby	Cutch		" 100	100 J. Barber & Co.
" 25	Colthurst & Harding	E. Indies, 700 pkgs.	Anderson, Weber, & Smith	Holland, 80	80 Prop. Sun. Wf.
Germany, 19	P. Jantzen	Rangoon, 250	Leach & Co.	U. States, 50	302 Page, Son, & East
Belgium, 85	Harrison & Co.	E. Indies, 300	Ross & Deering	" 98	587 Deering & Robottom
Bromide of Iron—		Germany, 100	M. Kearton & Co.	" 50	275 C. Southwell & Co.
Germany, 19 pkgs.	A. & M. Zimmermann	Manila, 800	Anderson, Weber, & Smith	" 75	388 U. Lighterage Co., Ltd.
Camphor—		Extract		" 50	280 R. G. Hall & Co.
China, 40 cs.	R. Warner & Co., Ltd.	Canada, 80 pkgs.	A. J. Humphrey	" 25	138 L. & I. D. Jt. Co.
" 362	S. Figgis & Co.	Austria, 400	"	" 100	556 Soundy & Sons
" 100	Lewis & Peat	France, 20	Beresford & Co.	" 200	200 L. Norman & Co., Ltd.
Japan, 6	L. & I. D. Jt. Co.	Denmark, 1	M. D. Co.	" 594	3,280 Prop. Chmbln's Wf.
Germany, 7 pkgs.	T. H. Lee	Fustic		" 100	550 Pillow, Jones & Co.
Japan, 66 tubs.	S. Figgis & Co.	Jamaica, 1 t.	Anderson, Anderson, & Co.	" 100	561 F. J. Warren
" 1 pkgs.	Devitt & Hett	Gambier		" 500	500 Beck & Pollitzer
China, 1	L. & I. D. Jt. Co.	E. Indies, 209 pkgs.	J. Greig	Manganese—	
Caoutchouc—		" 170	S. Barrow & Bro. Ltd.	Japan, 400 t.	H. C. Everett
France, 32 c.	H. Johnson & Sons	" 516	Brown & Elmslie	Chili, 1,595 t.	W. Montgomery & Co.
Belgium, 35	F. Claydon & Co.	" 252	R. & J. Henderson	E. Indies, 5	Protheroe & Co.
E. Indies, 62	Ross & Deering	" 448	Sollas & Sons	Germany, 10	W. G. Blagden
" 73	E. Boustead & Co.	" 232	Brinkmann & Co.	Methyl Alcohol—	
" 75	Prop. Bull Wf.	" 688	J. Swize & Sons	Belgium, 19 dms.	Stein Brs.
" 54	L. & I. D. Jt. Co.	Japan, 220	Union L. Co.	Germany, 5 cks.	Lister & Biggs
Germany, 52	"	E. Indies, 233	Ross & Deering	Mica—	
Aden, 67	"	" 252	Williams, Torrey & Co.	E. Indies, 4,470	W. M. Smith & Sons
Madagascar, 156	"	Indigo		Ochre—	
Zanzibar, 150	"	E. Indies, 41 cts.	L. & I. D. Jt. Co.	Holland, 24 pkgs.	Phillipps & Graves
" 90	Clarke & Smith	" 72	Parry & Co.	E. Indies, 18 cks.	O'Hara & Hoar
" 26	Wallace Brs.	" 21	R. von Glehn & Sons	Oxalic Acid—	
Madagascar, 115	Blyth, Green, & Co.	Logwood		Holland, 6 pkgs.	Beresford & Co.
Ecuador, 85	Prop. Bull Wf.	Jamaica, 272 t.	Anderson, Anderson, & Co.	Ozokerit—	
Carbonic Acid Gas—		" 11	Park, Macfadyen, & Co.	Germany, 6 pkgs.	M. D. Co.
Holland, 83 pkgs.	J. Barber & Co.	" 54	Hawthorn, Shedden, & Co.	Paraffin Wax—	
Castor Oil—		Madder		U. States, 550 brls.	H. Hill & Sons
E. Indies, 178 brls.	Cayzer, Irvine, & Co.	Holland, 7 pkgs.	W. Balchin	" 2,970	Anglo-American Oil Co.
Italy, 22 cs.	Beresford & Co.	Myrobolams		" 73	G. H. Frank
" 5	G. S. N. Co.	E. Indies, 743 pkgs.	H. A. Litchfield & Co.	Phosphate Rock—	
" 5	W. G. Frith & Co.	" 683	S. Barrow & Brs., Ltd.	Belgium, 14 t.	Coml. Lithge Co.
" 10	City Coml. Wf., Ltd.	" 1,366	A. Hagan	" 17	Hammond & Co.
Caustic Potash—		" 667	L. & I. D. Jt. Co.	France, 180	A. Hunter & Co.
France, 208 c.	J. Knight & Sons	Orchella		Plumbago—	
Chemicals (otherwise undes.)—		Madagascar, 30 pkgs.	Procter Brs.	Germany, 10 cks.	Acton & Borman
Germany, 21 pkgs.	T. H. Lee			Potash—	
" 10	A. & M. Zimmermann			Canada, 104 c.	Charles & Fox
				Germany, 200	Fellows, Morton & Co.
				Potassium Bicarbonate—	
				Holland, 30 cks.	A. & M. Zimmermann
				Germany, 1	M. D. Co.
				Potassium Binoxalate—	
				Holland, 20 pkgs.	Beresford & Co.
				Potassium Carbonate—	
				France, 100 c.	C. J. Capes & Co.
				" 95	F. J. Putz & Co.
				Germany, 408	W. G. Blagden
				" 17	M. D. Co.
				France, 50	J. A. Reid
				Potassium Chloride—	
				France, 16 pkgs.	Carey & Sons
				Potassium Cyanide—	
				Germany, 8 pkgs.	H. Lambert
				Potassium Hydrate—	
				France, 60 c.	Spies Brs. & Co.
				Potassium Sulphate—	
				France, 21 pkgs.	Mead, Son, & Co.
				Pumice Stone—	
				Italy, 1 t.	O'Hara & Hoar
				N. Zealand, 3	A. Laming & Co.
				Quicksilver—	
				France, 22 brls.	T. H. Lee
				Rosin—	
				U. States, 100 brls.	F. & S. Chiesman & Co.
				France, 15	Burrell & Co.
				Salt—	
				Portugal, 260 t.	Weston & Westall
				Saltpetre—	
				E. Indies, 1,121 bgs.	Lucas & Spencer's Wf.
				Germany, 300 bgs.	C. Wimble & Co.
				" 57 cks.	P. Hecker & Co.
				Soda—	
				Italy, 160 c.	Coml. L. Co.
				Belgium, 80	Union L. Co.
				Starch—	
				Germany, 4,460 pkgs.	Horne & Co.
				" 30	Phillipps & Graves
				Holland, 190	"
				" 209	M. Benscher
				" 1,220	Little & Johnston
				" 590	A. Starck
				Belgium, 40	T. H. Lee
				" 300	Leach & Co.
				" 100	Skilbeck Brs.
				" 150	F. Rosenthal & Co.
				" 343	F. Clayton & Co.
				U. States, 300	Oswego Co.
				" 100	R. Warner & Co., Ltd.
				" 305	Beck & Pollitzer
				Stearine—	
				France, 80 bgs.	Walbaum & Toesiti
				Belgium, 38	H. Hill & Sons
				Strontia—	
				Germany, 2 pkgs.	H. Lambert
				Tallow and Stearine—	
				Germany, 45 cks.	Fellows, Morton & Co.
				Ultramarine—	
				Holland, 20 cks.	Thames S. T. & L. Co., Ltd.
				" 20	Hernu, Peron & Co.
				" 9 cs.	Haeflner, Hilpert & Co.
				Belgium, 3	W. Harrison & Co.
				Germany, 2	L. & I. D. Jt. Co.

Varnish—
Germany, 12 pkgs. L. & I. D. Jt. Co.
France, 12 Flageollet & Co.
U. States, 4 Girard Bros. & Co.
" 7 Allan Bros. & Co.
" 20 Beck & Pollitzer

Verdigris—
France, 6 pkgs. B. & F. Wf. Co.

Vermillion—
Hong Kong, 10 cs. Roger Bros.

White Lead—
Holland, 94 cks. Burrell & Co.
" 26 Perkins & Homer
Germany, 60 T. & W. Farmiloe
" 40 D. Storer & Sons
" 42 M. Ashby, Ltd.
Belgium, 70 brls. J. L. Lyon & Co.

Wood Pulp—
Sweden, 1,880 pkgs. Tough & Henderson
" 476 C. S. Lovell
" 8 A. Arfwedson
" 6 Philipps & Graves
" 4,474 E. J. & W. Goldsmith
Germany, 624
Holland, 1,304
" 480 G. F. Green & Co.
N. Russia, 117 Thames S. T. & L. Co., Ltd.
Norway, 257 Henderson, Craig & Co.
" 800 Moreton Cox Bros.
Denmark, 280 G. F. Green & Co.
Germany, 203 W. Friedlander
" 420 Ekman Pulp & Paper Co.

Zinc Oxide—
Holland, 500 cks. Soundy & Sons
" 30 pkgs. Prprs. Dowgate
" 25 brls. M. Ashby, Ltd.
Germany, 50
U States, 100
Germany, 58 cks. J. Matton
" 15 Beresford & Co.

LIVERPOOL.

Week ending October 11th.

Antimony—
Antofagasta, 7 bgs. V. Younger & Bond
" 120 Aillon, Aramayo & Co.
" 136
" 234 pkgs. 133 sks. F. Huth & Co.

Barytes—
Antwerp, 90 bgs.

Bone Ash—
B. Ayres, 500 bgs. Hugh Brown

Bone Meal—
Rangoon, 372 bgs.

Boracic Acid—
Leghorn, 25 cks.

Borate of Lime—
Antofagasta, 580 bgs.

Carbolic Acid—
Bremen, 12 cks.

Caustic Potash—
Rotterdam, 60 dms. Co-op. W'sale Society, Ltd.

Caustic Soda—
Montreal, 1 dm. Flinn, Main & Co.

Castor Oil—
Antwerp, 1

Colours—
Calcutta, 110 cs.

Antwerp, 5 brls. J. T. Fletcher & Co.

Rotterdam, 1 ck. 7 cs.

Hamburg, 4 cks.

Cream of Tartar—
Barcelona, 10 cks.

Dried Blood—
M. Video, 448 bgs. 8 cs.

Dyestuffs—
Algarroballa, 184 bgs. A. W. Read

Guasco, 184 bgs. A. W. Read

Cochineal, 5 bgs. Canary Islands Trading Co.

Las Palmas, 5 G. S. Bruce

Gd. Canary, 5

Cutch, 933 bxs.

Rangoon, 933 bxs.

Divi Divi—
Hamburg, 149 bgs.
Extracts
Philadelphia, 25 brls.
Logwood
Marseilles, qty.
Laguna de Terminos, 45 t.
Frontera, 47 R. B. Watson & Co.

Saffron
Valencia, 2 cs.

Shumac
Barcelona, 100 bgs.

Palermo, 100 T. Kitchen, Ltd.

Turmeric, 1,835 25 bls.

Calcutta, 500 bgs. Ralli Bros.

Valonia, 813 bgs. Papayanni & Jeremias

Syria, 250 G. T. Scrim

Farina—
Hamburg, 700 bgs. H. Tyrer & Co.

Glucose—
New York, 350 brls.

Hamburg, 208 cks. 100 kgs.

Philadelphia, 400

Lamp Black—
Philadelphia, 20 brls.

Limestone—
Havre, 1 crt. Cunard S. S. Co., Ltd.

Linseed Oil—
Stettin, 30 brls.

Manganese—
Coquimbo, qty.

Nickel—
Hayre, 8 cks. Cunard S. S. Co., Ltd.

Ochre—
Alicante, 161 brls.

Rotterdam, 40 cks. Co-op. W'sale Society, Ltd.

Paraffin Wax—
Philadelphia, 55 brls.

Phosphate—
Dunkirk, 470 t.

Potash—
Antwerp, 2 brls. 10 dms.

Potassium Bichromate—
Rouen, 1 ck. R. J. Francis & Co.

Pumice Stone—
Messina, 5 brls. 5 bgs.

Pyrites—
Huelva, 1,900 t. Matheson & Co.

Rosin—
New York, 140 brls.

Boston, 20

Saltpetre—
Hamburg, 113 cks. 50 kgs.

Soap—
New York, 4 cs. Burroughs, Wellcome

Rotterdam, 1

Marseilles, 1 Thompson, Tedcastle

", 3 G. G. Mackay

Boston, 3 J. Thompson

Philadelphia, 1 bx. W. B. Midgeley

Leghorn, 250 cs. Weaver & Sierry

Naples, 80

Sodium Silicate—
Rotterdam, 3 cks.

Starch—
Antwerp, 220 bls. J. T. Fletcher & Co.

Rotterdam, 80 cs.

Stearine—
Antwerp, 38 bgs.

Rotterdam, 15 bxs.

Sulphur—
Catania, 130 bgs. Brown Bros. & Co.

", 108 cks. 2,520 bgs. 30 brls.

Sulphur Ore—
Huelva, 1,487 t. Matheson & Co.

Talc—
Genoa, 50 bgs. G. H. Fletcher & Co.

Tallow—
B. Ayres, 853 cks.

Rouen, 136 bgs. R. J. Francis & Co.

Tartar—
Bordeaux, 9 cks.

Ultramarine—
Rotterdam, 45 cs. 1 ck.

Verdigris—
Marseilles, 1 brl. Thompson, Tedcastle

Waste Salt—
Hamburg, 1,016 bgs.

", 80 t. 761 brls. H. Tyrer & Co.

White Lead—
Rotterdam, 6 cks.

Wood Pulp—
New York, 164 rolls.

Skien, 7,772 bls.

Christiania, 2,864

Lillesand, 1,117

Drammen, 2,462

Holmestrand, 1,000

Montreal, 9,981 bds. A. Rice & Co.

Gothenburg, 68 bls.

Wood Spirit—
Hamburg, 3 dms.

Zinc Ashes—
B. Ayres, 221 bgs.

Zinc Oxide—
Antwerp, 50 brls.

Rotterdam, 25 cks.

Zinc White—
Rotterdam, 210 cks.

MANCHESTER.

Week ending October 13th.

Acetate of Lime—
Nantes, 155 bgs. J. & P. Hutchinson

Albumen—
Treport, 21 cs. Arnati & Harrison

Antwerp, 8

Aniline Colours—
Rouen, 28 pkgs.

Arachide Oil—
Rotterdam, 15 cks.

Borax—
Hamburg, 6 dms. 5 cks.

Carbolic Acid—
Rotterdam, 20 tubs.

Chemicals (otherwise undescribed)
Rouen, 19 cks.

Rotterdam, 12

New York, 17

Coal Products (otherwise undes.)—
Rotterdam, 5 cs.

Colours—
Rotterdam, 38 cs. 43 cks. 19 bxs. 25 brls.

Treport, 1 2 Arnati & Harrison

Hamburg, 14

Antwerp, 11 16 brls.

Dyestuffs—
Annatto

Bordeaux, 5 cks. J. & P. Hutchinson

Extracts
Rouen, 15 cks.

Treport, 101 cs. 30 Arnati & Harrison

Bordeaux, 60 J. & P. Hutchinson

Farina—
Hamburg, 810 bgs.

Glucose—
Hamburg, 10 cks.

Limestone—
Antwerp, 2 crts.

Litharge—
Rotterdam, 16 cks.

Mineral—
Pensacola, 724 bgs. Bessler, Waechter & Co.

Nitrate—
Rotterdam, 16 cks.

Pitch—
Rotterdam, 59 cks.

Potash—
Hamburg, 29 cks.

Potassium Bicarbonate—
Hamburg, 1 ck.

Pumice Stone—
Hamburg, 5 cs.

Pyrites—
Huelva, 1,427 t.

Sodium Acetate—
Treport, 15 cks. Arnati & Harrison

Starch—
Hamburg, 356 cs.

Tartaric Acid—
Rotterdam, 20 cks. 20 kgs.

Ultramarine—
Hamburg, 2 cks. 1 cs.

Rotterdam, 7

Waste Salt—
Hamburg, 400 bgs. & qty.

Wood Pulp—
Hamburg, 420 pkgs. 400 bls.

Wood Spirit—
Hamburg, 2 dms.

Zinc Ashes—
Antwerp, 7 cks.

Zinc Oxide—
Rotterdam, 50 cks.

HULL.

Week ending October 13th.

Acetic Acid—
Rotterdam, 2 cks. W. & C. L. Ringrose

Aniline Colours—
Rotterdam, 1 kg. W. & C. L. Ringrose

Barytes—
Antwerp, 43 cks. Bailey & Leatham

Binitro Toluol—
Rotterdam, 13 cks. W. & C. L. Ringrose

Bone Meal—
Kurrachee, 4,998 bgs.

Camphor—
Hamburg, 3 cks. 1 brl. Wilson, Sons, & Co., Ltd.

Chemicals (otherwise undes.)—
Stettin, 5 cks. Wilson, Sons, & Co., Ltd.

Bremen, 6 cs. Veltmann & Co.

Dunkirk, 44 cks. Wilson, Sons, & Co., Ltd.

Antwerp, 61 pks. "

Chromium Fluoride—
Rotterdam, 10 cks. W. & C. L. Ringrose

Cod Oil—
Christiania, 20 brls. Wilson, Sons, & Co., Ltd.

Christiansund, 40

Aalesund, 264

Colours—
Rotterdam, 2 cs. 5 cks. 23 brls. 56 bxs. Hutchinson & Son

Rotterdam, 18 23 31 pks. W. & C. L. Ringrose

", 2 2 Wilson, Sons, & Co., Ltd.

Stettin, 2

Bremen, 2 J. Pyefinch & Co.

Antwerp, 20 34 pks. Wilson, Sons, & Co., Ltd.

Dextrine—
Stettin, 90 bgs. Wilson, Sons, & Co., Ltd.

Dyestuffs—
Alizarine

Rotterdam, 25 cks. W. & C. L. Ringrose

", 1 brl. 22 bxs. Hutchinson & Son

Extracts
Antwerp, 1 ck. Veltmann & Co.

Indigo
Amsterdam, 21 cs. Wilson, Sons, & Co., Ltd.

Madder
Rotterdam, 1 ck. W. & C. L. Ringrose

Amsterdam, 11 cs. Wilson, Sons, & Co., Ltd.

Valonia
Smyrna, 3,956 c.

Farina—
Ghent, 400 cs. Wilson, Sons, & Co., Ltd.

Harlingen, 400 bgs.

Glucose—
Stettin, 50 cks. Wilson, Sons, & Co., Ltd.

New York, 100 brls. 355 pks. Wilson, Sons, & Co., Ltd.

Kaolin—
Rotterdam, 251 bgs. Hutchinson & Son

Lead Acetate—
Rouen, 7 cks.

Sodium Nitrate—
Hamburg, 100 kgs. Wilson, Sons, & Co., Ltd.

Sodium Silicate—
Rotterdam, 1 ck. Hutchinso

Starch—			
Rotterdam,	20 cs.	W. & C. L. Ringrose	
Amsterdam,	20 bxs.	Veltmann & Co.	
Bremen,	587		
Stearine—			
Antwerp,	24 bgs.	Wilson, Sons, & Co., Ltd.	
Bergen,	12 brls.		
Antwerp,	35 bgs.		
Sulphur Ore—			
Seville,	1,540 t.	J. Dalton, Holmes, & Co.	
Tallow—			
St. Petersburg,	6 cks.	Wilson, Sons, & Co., Ltd.	
Antwerp,	27 pks.		
Tar—			
Gamla Carleby,	1,472 brls.		
Uleaborg,	1,036 brls. 480 hf.-brls.		
Tartar—			
Bordeaux,	2 cks.	Rawson & Robinson	
Tartaric Acid—			
Rotterdam,	1 ck.	Hutchinson & Son	
Tin Oxide—			
Rotterdam,	5 cks.	Hutchinson & Son	
Turpentine—			
Bordeaux,	10 brls.	Rawson & Robinson	
Libau,	52		
Yarnish—			
New York,	1 bx.	Wilson, Sons, & Co., Ltd.	
White Lead—			
Rotterdam,	48 cks.	Hutchinson & Son	
Antwerp,	22	Bailey & Leatham	
Rotterdam,	59	W. & C. L. Ringrose	
"	84	Hutchinson & Son	
Wood Pulp—			
Rotterdam,	20 bls.	Hutchinson & Son	
Helsingfors,	238	J. Good & Sons	
"	78	Furley & Co.	
"	23		
Zinc Oxide—			
Rotterdam,	25 cks.	Hutchinson & Son	

GLASGOW.

Week ending October 18th.

Acetate of Lime—		
New York,	582 bgs.	
Acetone—		
Rotterdam,	2 blns.	J. Rankine & Son

Alum—		
Hamburg,	164 cks.	
Aniline—		
Rotterdam,	1 cs.	J. Rankine & Son
Aniline Colours—		
Hamburg,	5 cs. 74 cks.	
Aniline Oil—		
Rotterdam,	1 ck.	
Arachide Oil—		
Rotterdam,	1 ck.	J. Rankine & Son
Asbestos—		
Genoa,	18 pks.	
Barium Chloride—		
Rotterdam,	6 cks.	
Barytes—		
Rotterdam,	16 pks.	
Borate of Lime—		
Rouen,	752 bgs.	
Carbonic Acid—		
Rotterdam,	15 tubes	J. Rankine & Son
Castor Oil—		
Genoa,	30 cs.	
Chemicals (otherwise undescribed)		
Rotterdam,	3 cks.	
Colours—		
Hamburg,	5 cks.	
Rotterdam,	33 pks.	
Dyestuffs—		
Alizarine		
Rotterdam,	63 pks.	
Extracts		
Nantes,	38 cks.	
Madder		
Rotterdam,	3 cks.	
Farina—		
Hamburg,	100 bgs.	
Glucose—		
New York,	750 brls.	
Philadelphia,	200	
Lactic Acid—		
Boston,	2 brls.	
Lamp Black—		
Philadelphia,	6 brls.	
Lead Acetate—		
Rouen,	26 cks.	J. Rankine & Son
Rotterdam,	26	
Manganese Acetate—		
Hamburg,	1 ck.	
Nitrate—		
Rotterdam,	5 cks.	
Oxalic Acid—		
Rotterdam,	11 cks.	J. Rankine & Son
Paint—		
New York,	10 kgs.	
Boston,	6 cs.	
Paraffin Scale—		
Philadelphia,	588 brls.	

Rosin—		
New York,	500 brls.	
Salt—		
New York,	50 bgs.	
Saltpetre—		
Hamburg,	50 cks.	
Sodium Acetate—		
Rouen,	27 cks.	
Starch—		
New York,	900 bxs.	
Rotterdam,	130 cs.	
Stearine—		
Rotterdam,	17 cks.	
Tartar—		
Bordeaux,	6 cks.	
Yarnish—		
Antwerp,	22 brls.	
Waste Salt—		
Hamburg,	250 t.	
White Lead—		
Rotterdam,	9 cks.	J. Rankine & Son
"	17	
Wood Pulp—		
Drontheim,	436 bls.	
Christiania,	400	
Wood Spirit—		
Hamburg,	7 dms.	
Zinc Oxide—		
Rotterdam,	25 cks.	
Zinc White—		
Rotterdam,	100 cks.	

TYNE.

Week ending October 13th.

Alum—		
Hamburg,	22 cks.	Tyne S. S. Co.
Barytes—		
Antwerp,	320 bgs.	Tyne S. S. Co.
Chemicals (otherwise undescribed)		
Gothenburg,	1 sple.	
Cod Oil—		
Bergen,	2 brls.	
Colours—		
Hamburg,	6 cs. 2 cks.	Tyne S. S. Co.
Farina—		
Hamburg,	50 bgs.	Tyne S. S. Co.
Plumbago—		
Antwerp,	5 bgs.	Tyne S. S. Co.
Starch—		
Rotterdam,	70 cs.	Tyne S. S. Co.
Ghent,	160 bxs.	"
Waste Salt—		
Harburg,	261 t.	Langdale's Chemical M. Co.

Wood Pulp—		
Gothenburg,	82 pks.	
Christiania,	230 bls.	
Zinc Oxide—		
Rotterdam,	25 cks.	Tyne S. S. Co.
Antwerp,	25 brls.	"

GOOLE.

Week ending October 10th.

Antimony—		
Boulogne,	5 cks.	
Caoutchouc—		
Boulogne,	5 cks.	
Caustic Potash—		
Calais,	24 dms.	
Dyestuffs—		
Alizarine		
Rotterdam,	126 pks.	
Extracts		
Ghent,	100 cks.	
Madder		
Rotterdam,	2 cks.	
Dyestuffs (otherwise undescribed)		
Rotterdam,	40 pks.	
Boulogne,	8 cks. 2 cs.	
Farina—		
Hamburg,	210 bgs.	
Delfzijl,	455	
Glucose—		
Calais,	200 bgs.	
Saltpetre—		
Rotterdam,	100 bgs.	
Soda—		
Rotterdam,	10 cks.	
Waste Salt—		
Hamburg,	520 bgs.	
Zinc Oxide—		
Antwerp,	25 brls.	

GRIMSBY.

Week ending October 13th.

Aniline Dyes—		
Antwerp,	52 pks.	
Caoutchouc—		
Antwerp,	15 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	10 cks. 3 cs.	
Dyestuffs (otherwise undescribed)		
Dieppe,	8 cks.	
Farina—		
Hamburg,	25 bgs.	
Waste Salt—		
Hamburg,	100 bgs.	

EXPORTS OF CHEMICAL PRODUCTS
OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 17th.

Acids—		
Bombay,	2 cs.	£15
Alkali—		
Jaffa,	2 t. 3 c.	£15
Alum—		
Salonica,	3 t. 11 c.	£20
Ammonia (Liquid)—		
Hamburg,	3 t.	£57
M. Video,	50 cs.	89
Algoa Bay,	8	11
Calcutta,	140	115
Ammonium Bichromate—		
New York,	5 c.	£21
Ammonium Carbonate—		
M. Video,	10 cs.	£35
Rosario,	20	35
St. Petersburg,	85 pks.	241
Odessa,	3 t. 10 c.	123
Dunedin,	5	10
Bordeaux, 6 cks.		38
Rouen,	11 10	280
Sydney,	8 cs.	11

Ammonium Chloride—		
Shanghai,	1 t. 13 c.	£61
Paris,	1 10	53
Bagdad,	1 3	44
Ammonium Nitrate—		
Bilbao,	70 cks.	£384
Ammonium Sulphate—		
Le Treport,	25 t.	£330
Amorphous Phosphorus—		
Hiogo,	40 cs.	£515
Arsenic—		
Cape Town,	18 c	£14
Sydney,	5 t.	76
Barium Nitrate—		
New York,	2 t.	£38
Madras,	15 kgs.	14
Bisulphite of Lime—		
Natal,	1 t. 11 c.	£19
Boracic Acid—		
Melbourne,	2 t.	£67
Sydney,	10 c.	16
Borax—		
E. London,	1 t.	£24
Antwerp, 36 cks.		360
Sydney,	4 9 c.	174
Copenhagen,	18	45

Hamburg,	12 cks.	85
Carbolic Acid—		
Hamburg,	7 c.	£15
Rotterdam,	9 t. 8	163
Napier,	2 cks.	7
Antwerp,	2	6
Carbon Bisulphide—		
Boston,	18 dms.	£99
Carbonic Acid Gas—		
Dunedin,	5 cs.	£34
Bordeaux,	14 tubes.	28
Caustic Soda—		
Auckland,	16 t.	£137
Melbourne,	1 15 c.	54
Algoa Bay,	3 5	96
Fremantle,	3	6
Wellington,	8 3	69
Chemicals (otherwise undescribed)		
M. Video,	3 pks.	£17
Rosario,	20 cs.	6
B. Ayres,	68	300
Algoa Bay,		2
Durban,		25
Sydney,	8 c.	26
Madras,		24
Dunkirk,	5 t 15	70
Canterbury,	12	10

Cape Town,	7	22
Calcutta,	5	24
Adelaide,		34
Natal,	3	17
Chloride of Lime—		
Cape Town,	15 pks.	£10
Citric Acid—		
Hamburg,	3 pks.	£44
M. Video,	1 ck.	25
St. Petersburg,	9 t. 15 c.	1,896
Adelaide,	2	17
Melbourne,	10	62
Calcutta, 3 cs.		23
Bombay,	1	8
Lisbon,	5 cks.	35
Coal Products—		
Alizarine		
Dunedin,	5 cks.	£80
Bombay,	28 kgs.	143
St. Petersburg,	3 cs.	300
Aniline Dyes		
Calcutta,	1 cs.	£68
Aniline Oil		
New York,	14 dms.	£110
Barcelona,	16 cks.	160
Aniline Salts		
New York,	30 cks.	£220
Barcelona,	4	20

Anthracene Cologne, 68 cks. £960	Rio, 2 8 61	Shanghai, 2 7	Milwaukee, 150
Benzol Hamburg, 9 pns.	Adelaide, 1 18 12	Antwerp, 1 3 27	Montreal, 80
Trepont , 30 cks. £63	Algoa Bay, 1 18 40	Genoa, 1 3 27	Naples, 67
Coal Tar Dyes	Sydney, 6 5 140	Ammonium Sulphate	Newport News, 720 5 46 bxs
Boston, 11 cks. £169	Dunedin, 1 22	Barcelona, 10 t. 7 c. 3 q. £140	New York, 106 225
Creosote	Canterbury, 10 11	Denia, 12 4 3 168	Philadelphia, 20
New York, 2 cs. 250 brls. £134	Melbourne, 2 1 44	Alicante, 20 14 3 280	Pt. Elizabeth, 11
Naphtha	Rio de Janeiro, 20 5 476	Hamburg, 11 13 c. 3 q. £175	Puerto Cabello, 33
Marseilles, 22 dms. £86	Geelong, 5 6	Montreal, 7 13 c. 3 q. 104	Quebec, 65
Boulogne, 4 cks. 25	Salts of Lime	Genoa, 50 13 1 700	Riga, 15
Naphthaline	New York, 10 cks. £103	Boston, 76 13 1 940	Rio de Janeiro, 20
Hamburg, 6 cks. £48	Sheep Dip	Bordeaux, 26 9 1 189	Rouen, 103
Trepont, 1 9	Natal, 515 pkgs. 2 t. 6 c. £448	Nantes, 13 10 3 127	San Francisco, 110 40 pkgs. 35
Pitch	Cape Town, 2 5 89	Venice, 97 18 3 127	Shanghai, 35
Dunkirk, 110 t. £180	Algoa Bay, 1 18 800 dms. 284	New York, 49 19 3 662	Stockholm, 26 brls
Melbourne, 10 fms. 7	Calcutta, 170 30	Valencia, 170 2,104	Tampico, 25
Auckland, 25 pkgs. 14	Melbourne, 122 pkgs. 1,000 100 kgs. 575	Antimony	Tarragona, 10 cks.
Boston, 920 cks. 450	Soda	Bombay, 8 cs.	Toronto, 35
Tar	Cape Town, 5 t. 14 c. £12	Asbestos	Valparaiso, 35
E. London, 15 dms. 200 pkgs. £12	Nelson, 2 19 8	B Ayres, 4 cs.	Vera Cruz, 17
Algoa Bay, 250 8	Soda Crystals	Taitai, 1	Bordeaux, 28
Natal, 45 10	Natal, 13 c. £4	Bisulphite of Lime	Calcutta, 173
Cape Town, 250 7	Algoa Bay, 4 t. 14 11	Rotterdam, 7 t. £50	Carril, 10 20 6 kgs.
Boston, 240 cks. 130	Stockholm, 10 16 22	Bleaching Powder	Corunna, 8
Tar Oil	Algoa Bay, 4 6 11	Baltimore, 64 cks.	Fiume, 15
Marseilles, 35 brls. £27	Sodium Bicarbonate	Boston, 702	Galatz, 50
Copper Sulphate	Greytown, 1 t. £7	Genoa, 125	Gefse, 16
Christiania, 10 t. 2 c. £144	Sydney, 5 15 c. 33	Hamburg, 100	Havana, 85
Paris, 5 2 160	Algoa Bay, 2 5 36	Lisbon, 33	Ibrail, 23
Odessa, 3 7 45	Montreal, 2 5 6	Montreal, 72	Las Palmas, 21
Rouen, 5 75	New York, 1 13	Naples, 42	Melbourne, 5 cs. 4 ctns.
Genoa, 5 80	Adelaide, 2 10	Newport News, 44 30 bxs.	Pernambuco, 50
Sydney, 12 177	Sodium Carbonate	New York, 520 100 brls.	Samarang, 50
Cream of Tartar	Nelson, 1 t. £8	Passages, 20	Seville, 50
Wellington, 10 cs. £43	Brisbane, 1 39	Philadelphia, 148	Chemicals (otherwise undescribed)
Yokohama, 5 c. 19	Sodium Hypophosphate	San Francisco, 20 25 dms.	Riga, 2 t. 1 q. £73
Dunedin, 10 32	New York, 2 c. £33	Sebastian, 29	Konigsberg, 3 c.
Canterbury, 10 32	Sodium Nitrate	Toronto, 33	Alexandria, 2 72
Adelaide, 5 16	Kobe, 10 t. 2 c. £97	Vera Cruz, 33	Salaverr, 4 7
Geelong, 2 6	Sodium Silicate	Alexandria, 11 2 cs.	Danzig, 5 0
Sydney, 1 t. 70	Auckland, 20 cks. £22	Havana, 11	Santos, 23 cs. 167
Disinfectants	Sodium Sulphate	Syria, 4	Boston, 3 9 117
Bombay, 20 dms. £32	Montreal, 12 c. £66	Boric Acid	Odessa, 1 19 2 74
Cape Town, 67 pkgs. 36	Sodium Tartrate	New York, 15 cks. £95	Genoa, 12 2 24
Launceston, 20 5 cs. 24	Adelaide, 5 c. £15	Boston, 3 t. 95	Copenhagen, 1 37
Berbec, 20 14	Speat Oxide	Rouen, 1 3 c. 1 q. 36	Pireus, 5 10 10
Natal, 18 40	Antwerp, 18 t. £120	Antwerp, 6 11	Kurrachee, 1 19 2 71
Calcutta, 55 42	Strontium Nitrate	Borax	Mer-yne, 1 38
Foochow, 2 13	Madras, 15 kgs. £17	Hamburg, 2 t. 15 c. £60	Philadelphia, 13 4 443
Sydney, 50 dms. 40 113	Sulphur	Smyrna, 2 4 4	China Clay
Dried Blood	Cape Town, 4 t. 50 cks. £84	Algoa Bay, 2 4 46	Boston, 1,781 bgs. 4,050 cks.
Rouen, 50 t. 3 c. £285	Melbourne, 100 320	Konigsberg, 3 5 5	Calcutta, 45 t.
Guano	Sulphur Dioxide	Montreal, 3 3 q. 106	Halifax, 10
Genoa, 50 t. £500	Melbourne, 17 cs. £75	Alexandria, 1 2 1 24	Montreal, 155
Hypophosphite of Lime	Sulphuric Acid	Sydney, 1 2 1 25	New York, 270
New York, 1 c. £16	Delagoa Bay, 1 t. £8	Calcutta, 1 2 1 25	Philadelphia, 30
Manure	Natal, 40 cs. 5 t. 5 53	Copenhagen, 1 2 1 25	Rio de Janeiro, 12 1/2
Bordeaux, 44 t. 19 c. £375	Sydney, 4 8	N. York, 65 cks. 37 2 3 1,065	Victoria, B.C., 5
Denia, 375 3,400	Tartaric Acid	Boston, 11 16 2 234	Chrome Ore
Gandia, 105 1,480	M. Video, 3 cks. £70	Rotterdam, 45 13 1 921	Antwerp, 3 t.
Valencia, 160 1,420	Auckland, 10 c. 49	Antwerp, 8 9 2 171	Coal Products
Lisbon, 40 12 312	Sydney, 40 kgs. 186	Melbourne, 2 2 1 4	Aniline
Riga, 77 19 205	Dunedin, 5 5 24	Calcium Chloride	New York, 10 cks.
Natal, 52 15 207	Bombay, 5 cs. 37	Melbourne, 4 t. 15 c. £11	Shanghai, 100 cs.
St. Lucia, 30 10 75	Adelaide, 2 t. 15 264	Calcutta, 2 2 5	Aniline Salts
" Vincent, 4 10	LIVERPOOL.	Caouchouc	Boston, 14 t. 15 c. £750
Muriatic Acid	<i>Week ending October 17th.</i>	Brisbane, 3 cs. 6	New York, 2 4 100
Natal, 5 cs. £5	Alkali Waste	B. Ayres, 6	Pitch
Nitric Acid	Antwerp, 1 t. 18 c. £6	Baltimore, 10 cs. £53	Antwerp, 75 t. 70 brls.
Madras, 6 cs. £8	Alum	Samarang, 10 t. 16 c. 3 q. 165	Mussra, 10
Jersey, 35 cbs. 62	Piraeus, 6 t. 8 c. £45	Rotterdam, 10 15 550	Rotterdam, 120
Nitrous Oxide Gas	Smyrna, 1 1 3 q. 6	Adelaide, 10 10 3 23	Rouen, 150 2 cks.
Melbourne, 2 cs. £65	Montreal, 13 3 1 63	Hamburg, 12 7 640	Cobalt Oxide
Oxalic Acid	Varna, 2 18 3 15	Yokohama, 1 10 74	Rotterdam, 2 c. £50
Auckland, 5 c. £9	New York, 1 3 6	Carbonate of Lime	Copperas
Melbourne, 1 t. 7 45	B. Ayres, 4 15 20	Lisbon, 1 t. 3 c. 3 q. £9	Melbourne, 4 t. 15 c. £8
Phosphorus	Petrolia, 12 18 56	Castor Oil	Copper Sulphate
Wellington, 2 cs. £21	Alumina Sulphate	Anamaboe, 3 cs.	B. Ayres, 10 t. 2 c. 1 q. £150
Sydney, 3 31	Bombay, 9 c. £10	Coprena, 3	Ghent, 8 6 2 121
Oporto, 3 c. 30	Calcutta, 50 t. 17 3 q. 151	San Francisco, 2 t. £44	Antwerp, 19 3 15
Potash	Montreal, 30 t. 15 c. £88	Newport News, 1 14 c. 61	Madras, 1 5 18
Wellington, 10 c. £33	Aluminoferrie	Caustic Soda	Paris, 5 2 1 74
Rio de Janeiro, 10 14	Adelaide, 10 dms.	Adelaide, 10 dms.	Catania, 14 6 2 109
Potash Crystals	Antwerp, 100	Algoa Bay, 5 t. cs. 30 bxs. 20 kgs.	Palermo, 4 19 74
Paris, 2 cs. £53	Bahia, 50	Antwerp, 100	N. Orleans, 29 10 2 480
Sydney, 1 t. 44	Baltimore, 153 1,894 bgs. 152 cks.	Bombay, 4 cs 76 1	Bordeaux, 40 3 617
Potassium Bichromate	Barcelona, 350 345 brls.	Boston, 77 40 32	Tampico, 25 362
Dunedin, 1 t. 5 c. £52	Bombay, 4 cs 76 1	Cape Town, 3 68	Rouen, 57 19 3 844
Geelong, 16 35	Trieste, 2 5 c. 8	Carupano, 22 35	Nantes, 55 8 3 840
Potassium Chlorate	Halifax, 1 35	Catania, 95	Amsterdam, 5 1 2 71
New York, 10 c. £28	Naples, 2 4 7	Genoa, 449	Hamburg, 19 13 7
Hiojo, 500 kgs. 1,282	Genoa, 2 1 73	Hamburg, 11 60	Alexandria, 10 7 8
Gothenburg, 5 14	Hamburg, 2 10 18	Hamilton, 60	Rotterdam, 14 2 8
Madras, 25 72	Copenhagen, 1 12 68	Hiojo, 160	Melbourne, 83 880
Melbourne, 1 t. 54	Riga, 2 10 90	La Guayra, 20	St. Petersburg, 9 19 1 150
Potassium Hypophosphite	Ammonium Chloride	Leghorn, 123	Gothenburg, 3 9 45
New York, 3 c. £49	Galatz, 1 t. 3 q. £37	Lisbon, 75	Sydney, 10 145
Saltpetre	St. Petersburg, 11 7 c. 387	Malta, 11	San Francisco, 8 7 3 119
Lisbon, 3 t. 13 c. £79	Kurrachee, 15 26	Messina, 92	Cream of Tartar
Gibraltar, 20 431	Ammonium Sulphate	Disinfectants	Victoria, B.C., 5 cs. £20
Gothenburg, 1 20	Galatz, 1 t. 3 q. £37	Rangoon, 20 cks. £1	

Glucose— N. Orleans, 1 ck.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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Sulphuric Acid —				
Loanda,	1 t.	2 c.	3 q.	£7
Bahia,	10			7
Superphosphate —				
Nantes,	440 t.	15 c.		£1,060
Bordeaux,	9	13	3 q.	39
Turpentine —				
Bremerhaven,	5 brls.			
Ultramarine —				
Yokohama,	8 brls.			
Yarnish —				
Alexandria,	2 cs.			
Boston,	14			
B. Ayres,		3 dms.		
Valparaiso,	2			
Leghorn,	10		3 cks.	
Montevia,		qty.		
Victoria, B. C.,		2		
Verdigris —				
Melbourne,	3 c.			£15
White Lead —				
Bahia,	20 kgs.			
Hamburg,	80			
Whiting —				
New York,	32 cks.			
Rio de Janeiro,	5 brls.			
Corunna,	67			
Zinc Chloride —				
Bahia,	2 t.	12 c.	2 q.	£42

MANCHESTER.

Week ending October 18th.

Alkali —				
Antwerp,	1 ck.			
Ammonium Carbonate —				
Hamburg,	1 ck.			
Ammonium Sulphate —				
Cellera,	700 bgs.			
Valencia,	1,680			
Anthracene —				
Rotterdam,	63 cks.			
Chemicals (otherwise undescribed)				
Antwerp,	10 cks.			
Copenhagen,	4			
Colours —				
Antwerp,	1 hupr.			
Extracts —				
Rotterdam,	10 cks.	2 bxs.		
Mirbane Oil —				
Hamburg,	3 cks.			
Paraffin Wax —				
Hamburg,	50 bgs.	5 cs.		
Pitch —				
Antwerp,	118 t.			
Rotterdam,	139			
Salt Cake —				
Antwerp,	30 t.			
Tar Oil —				
Antwerp,	8 dms.			
Tar Salts —				
Antwerp,	22 cks.			
Zinc Chloride —				
Antwerp,	1 cs.			

HULL.

Week ending October 13th.

Alkali —				
Bremen,	2 cks.			
Ammonium Sulphate —				
Antwerp,	994 bgs.			
Rotterdam,	500			
Bleaching Powder —				
Stettin,	50 cks.			
Caustic Soda —				
Reval,	125 dms.	60 cks.		
Chemicals (otherwise undescribed)				
Antwerp,	12 cks.			
Amsterdam,	4	1 bx.		
Christiania,	73	25 cs.	1 pkge.	
	1,541 slbs.			
Constantinople,	50			
Gothenburg,	1	4	15	
Harlingen,	20			
Hamburg,	12	201		
Konigsberg,	29			
Odessa,	48			
Reval,	1			
Rotterdam,	98	40		
Riga,	91			
St. Petersburg,			87	
Stettin,	4			
Cottonseed Oil —				
Antwerp,	100 c.			
Bergen,	16			

Christiansand,	10			
Copenhagen,	102			
Hamburg,	454			
Konigsberg,	52			
Rotterdam,	1,132			
Stettin,	102			

Dyestuffs (otherwise undescribed)

Antwerp,	1 cs.	1 ck.		
Amsterdam,	1			
Christiania,		2	20 bgs.	
Danzig,	3			
St. Petersburg,	1	10		
Stettin,		12		

Linseed Oil

Alexandria,	70 c.			
Bremen,	6			
Bergen,	62			
Christiania,	880			
Christiansand,	69			
Christiansund,	52			
Copenhagen,	222			
Constantinople,	67			
Hamburg,	1,373			
Rotterdam,	87			
Stavanger,	83			
Stettin,	1,190			

Manure

Rouen,	46 t.			
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Mineral White

Antwerp,	5 t.			
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Naphtha

Copenhagen,	1 ck.			
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Ochre

Amsterdam,	1 ck.			
Hamburg,	38			
Konigsberg,	7			

Painters' Colours

Antwerp,	39 cks.	2 cs.	12 dms.	
Amsterdam,	10			
Bremen,	21	2 pkgs.		
Christiania,	2	4	30	
Copenhagen,	9			
Dunkirk,	1	1		
Ghent,	3			
Gothenburg,	6	1 cs.	1	
Hamburg,	18			
Konigsberg,	25			
New York,	113			
Odessa,	142			
Rotterdam,	14	1		
Riga,			6	
St. Petersburg,	127	20		
Stettin,	25			

Pitch

Antwerp,	230 t.			
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Soap

Bremen,	3 kgs.			
Hamburg,	1 cs.			
Riga,	1 dm.			

Tallow

Rotterdam,	22 cks.			
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Tar

Hamburg,	5 cks.			
Rotterdam,	6			

Turpentine

Alexandria,	125 dms.			
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Yarnish

Antwerp,	1 ck.			
Copenhagen,	1			
Danzig,	1	3 cs.		
Riga,		29		

GLASGOW.

Week ending October 18th.

Coal Products —				
Aniline				
Calcutta,	7½ c.			£73
Pitch				
New York,	51 t.	8 c.		£63
Antwerp,	70	2½		74
Tar				
Canada,	73 t.	18 c.		£145
Coal Products (otherwise undes.) —				
Rotterdam,	12 dms.			£85
Dyestuffs —				
Extracts				
Lisbon,	1 t.	6½ c.		£24
Logwood				
Lisbon,	3 t.	11¼ c.		£21
Farina —				
Philadelphia,	2 t.	10 c.		£33
Glucose —				
Cape Colony,	15 t.			£220
Iodine —				
Rotterdam,	1 ck.			£325
Lead Nitrate —				
Italy,	2 t.	15¼ c.		£45
Lead Sulphate —				
Rotterdam,	7 cks.			£19

Litharge —				
Lisbon,	3 t.			£36
Rotterdam,	1 ck.			5

Manure

Italy,	59 t.	2¼ c.		£450
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Paint

Calcutta,	21 t.	15 c.		£339
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Painters' Colours

Singapore,	3 t.	19 c.		£53
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Paraffin Wax

Rouen,	2 t.	10 c.		£50
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Potash Salts

Cape Colony,	21 t.	9¼ c.		£2,482
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Potassium Bichromate

Rouen,	5 t.	1 c.		£200
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Salt

Calcutta,	2	4		93
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Salt

Italy,	55	4¼		2,193
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Salt

Brisbane,	351 t.	2 c.		£334
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Slag

Singapore,	3	2		40
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Slag

Rotterdam,	324 t.			£113
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Soap

Amsterdam,	609			212
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Soda Ash

Lisbon,	2 t.	8 c.		£42
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Sodium Bichromate

Philadelphia,	25 t.			£57
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Sodium Sulphate

Italy,	44 t.	9 c.		£1,351
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Tallow

Canada,	10 t.	17 c.		£30
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Tallow

Rotterdam,	1 t.	18 c.		£66
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Tallow

Christiania,	34 lbs.			8s.
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TYNE.

Week ending October 13th.

Alkali —				
Hamburg,	5 t.	7 c.		
Christiania,	2	15		
Frederikshavn,	10	7		
Riga,	6	3		
Amsterdam,	98	2		

Alum

Madras,	100 t.	6 c.		
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Alum Earth

Antwerp,	5 t.	10 c.		
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Antimony

Rotterdam,	6 t.			
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Antimony

Antwerp,	5			
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Barytes

Amsterdam,	3	15		
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Barytes

Antwerp,	10 t.	3 c.		
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Blanc Fixe

Hamburg,	111	10		
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Blanc Fixe

Antwerp,	17 c.			
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Bleaching Powder

Rotterdam,	7 t.	15 c.		
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Bleaching Powder

Antwerp,	31	18		
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Bleaching Powder

Hamburg,	54	13		
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Bleaching Powder

Christiania,	14	19		
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Bleaching Powder

St. Petersburg,	375	4		
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Bleaching Powder

Riga,	147	18		
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Bleaching Powder

Drontheim,	10	1		
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Bleaching Powder

Copenhagen,	13	1		
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Bleaching Powder

Konigsberg,	3	16		
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Bleaching Powder

Amsterdam,	49	16		
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Borax

Odessa,	2 t.	18 c.		
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Castor Oil

Antwerp,	¼ c.			
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Caustic Soda

Constantinople,	1 t.			
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Caustic Soda

Antwerp,	3	3 c.		
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Caustic Soda

Hamburg,	111	10		
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Caustic Soda

PRICES CURRENT.

WEDNESDAY, Oct. 24th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	10/9	
Glacial			50/-	
Arsenic S.G., 2000°			0 14 6	
Fluoric	per lb.	0 0 3 1/4		
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0 10		
(Cylinder), 30° Tw.		0 3 0		
Nitric 80° Tw.	per lb.	0 0 1 1/4		
Nitrous		0 0 1 1/4		
Oxalic	nett	0 0 3 1/4		
Phosphoric, 1750°		0 1 0		
Picric		0 1 0		
Sulphuric (fuming 50 %)	per ton	15 10 0		
(monohydrate)		5 10 0		
(Pyrites, 168°)		3 0 0		
(free from arsenic, 145°)		1 5 0		
Sulphurous (solution) S.G. 1025		1 6 0		
Tannic (pure)	per lb.	0 1 0		
Tartaric		0 0 11		
Arsenic, white powder d	nett per ton	14 5 0		
Alum (loose lump)		5 0 0		
Alumina Sulphate (pure)		5 0 0		
Aluminoferrous		2 7 6		
Aluminium	per lb.	0 3 0		
Ammonia, Anhydrous		0 1 4		
" 880=28° B.	per lb.	0 0 3		
" =24° B.		0 0 2 1/4		
" Carbonate	nett	0 0 3 1/4		
" Muriate	per ton	23 10 0		
" (sal-ammoniac) 1st & 2nd	per cwt.	39/- & 37/-		
" Nitrate	per ton	41 0 0		
" Phosphate	per lb.	0 0 10 1/2		
" Sulphate (grey) London	per ton	12 10 0		
" (grey) Hull		12 10 0		
Aniline Oil (pure)	per lb.	0 0 6		
Aniline Salt		0 0 5 1/2		
Antimony	per ton	33 10 0		
" (tartar emetic)	per lb.	0 0 9 1/4		
" (gold sulphide)		0 0 10		
Barium Chloride	per ton	6 10 0		
" Carbonate (native)		3 10 0		
" Sulphate (native levigated)		45/- to 75/-		
Bleaching Powder, 35 %	nett	7 10 0		
" Liquor, 7 %		3 10 0		
Bisulphide of Carbon		11 5 0		
Chromium Acetate (crystal)	per lb.	0 0 6		
Calcium Chloride	per ton	2 5 0		
China Clay (at Runcorn) in bulk		17/6 to 30/-		
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0 0 8		
Magenta		0 3 9		
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1 1		
Benzol, 90 % nominal	per gallon	0 1 2 1/2		
" 50/90		0 1 2		
Carbolic Acid (crystallised 40°)	per lb.	0 0 5 1/4		
" (crude 60°)	per gallon	0 1 6 1/2		
Creosote (ordinary)		0 0 2		
" (filtered for Lucigen light)		0 0 2 1/2		
Crude Naphtha 30 % @ 120° C.		0 0 5 1/4		
Grease Oils, 22° Tw.	per ton	2 10 0		
Pitch, f.o.b. Liverpool or Garston		1 15 0		
Solvent Naphtha, 90 % at 160°	per gallon	0 1 2 1/2		
Lucigen and "Wells" Oils		0 0 2 1/2		
Copper	per ton	40 15 0		
" Sulphate		14 15 0		
" Oxide (copper scales)		39 5 0		
Glycerine (crude)		15 0 0		
" (distilled S.G. 1250°)		41 0 0		
Iodine	nett, per oz.	0 0 9		
Iron Sulphate (copperas)	per ton	1 5 0		
" Sulphide (antimony slag)		2 0 0		
Lead (sheet) for cash		11 0 0		
" Litharge Flake (ex ship)		13 10 0		
" Acetate (white)		25 0 0		
" brown		15 10 0		
" Carbonate (white lead) pure		16 0 0		
" Nitrate		20 0 0		
Lime, Acetate (brown)	per ton	7 5 0		
" (grey)		10 15 0		
Magnesium (ribbon and wire)	per oz.	0 2 0		
" Chloride (ex ship)	per ton	2 10 0		
" Carbonate	per cwt.	1 17 0		
" Hydrate	per ton	17 0 0		
" Sulphate (Epsom Salts)	per ton	3 0 0		
Manganese, Sulphate		17 15 0		
" Borate	per cwt.	2 15 0		
" Ore, 70 %	per ton	4 5 0		
Methylated Spirit, 61° O.P.	per gallon	0 1 10		
Naphtha (Wood), Solvent		0 3 4		
" Miscible, 60° O.P.		0 3 8		
Oils:—				
Cotton-seed	per on	20 10 0		
Linseed		22 10 0		
Petroleum, American	per gallon	0 0 5 1/2		
Stearine	per ton	25 10 0		
Phosphorus (yellow)	per lb.	0 2 1		
" (red)		0 2 8		
Potassium (metal)	per oz.	0 3 7		
" Bichromate	nett per lb.	0 0 4 1/2		
" Carbonate, 90% (ex ship)	per ton	16 15 0		
" Chlorate	per lb.	0 0 5 1/4		
" Cyanide, 98%		0 2 3		
" Hydrate (Caustic Potash) 80/85 %	per ton	21 15 0		
" (Caustic Potash) 75/80 %		20 0 0		
" (Caustic Potash) 70/75 %		19 10 0		
" Nitrate (refined)	per cwt.	1 2 6		
" Permanganate	per cwt.	3 2 6		
" Prussiate Yellow	per lb.	0 0 10 1/4		
" Sulphate, 90 % (ex ship)	per ton	9 15 0		
" Muriate, 80 % (do.)		8 7 6		
Silver (metal)	per oz.	0 2 5 1/2		
" Nitrate		0 2 10		
Sodium (metal)	per lb.	0 3 0		
" Carb. (refined Soda-ash) 48 %	nett per ton	4 15 0		
" (Caustic Soda-ash) 48 %		4 0 0		
" (Carb. Soda-ash) 48 %		4 0 0		
" (Alkali) 58 %		3 15 0		
" (Soda Crystals)		2 5 0		
" Acetate (ex-ship)		14 15 0		
" Arseniate, 45 %		11 0 0		
" Chlorate	per lb.	0 0 7 1/4		
" Borate (Borax)	net, per ton	20 0 0		
" Bichromate	per lb.	0 0 3 1/4		
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton		10 12 6		
" (74 % Caustic Soda)		9 10 0		
" (70 % Caustic Soda)		8 10 0		
" (60 % Caustic Soda)		7 10 0		
" (60 % Caustic Soda, cream) (f.o.b.)		7 7 6		
" Bicarbonate		5 12 6		
" Hypsulphite		5 10 0		
" Manganate, 30%		16 0 0		
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0 8 10 1/2		
" Nitrite, 98 %	per ton	29 0 0		
" Phosphate		15 0 0		
" Silicate (glass)	per ton	5 7 0		
" (liquid, 100° Tw.)		4 5 0		
" Stannate, 40 %	per cwt.	3 2 9		
" Sulphate (Salt-cake)	per ton	0 17 6		
" (Glauber's Salts)		1 5 0		
" Sulphide		8 10 0		
" Sulphite		5 7 6		
Strontium Hydrate, 100%		8 10 0		
Sulphocyanide Ammonium, 95 %	per lb.	0 0 7 1/4		
" Barium, 95 %		0 0 5		
" Potassium		0 0 7 1/2		
Sulphur (Flowers)	per ton	7 5 0		
" (Roll Brimstone)		5 5 0		
Brimstone: Best Quality		3 15 0		
Superphosphate of Lime (26 %)		2 7 6		
Tallow		23 10 0		
Tin Crystals	per lb.	0 0 6		
" English Ingots		71 10 0		
Zinc (Spelter)	per ton	15 2 6		
" Chloride (solution, 96° Tw.)		5 10 0		

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—Reply, stating age, qualifications, and salary required, to "B," *Chemical Trade Journal*, Manchester.

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THE CRISIS IN THE ALKALI TRADE.

A FINANCIAL paper well-known for its anti-Alkali-Union feeling, having last week dug its knife as deeply as it knew how into the ribs of the United Alkali Company and the Le Blanc soda process in general, it behoves us to point out to those outside the mystic circle that the pictures drawn by *The Financial News*, represent by no means the real facts of the case, and that the statement that within "practically a few months the Leblanc works will probably be worth only the value of old iron and bricks and mortar" is not only not true, but it is clear that the signs of the times have been woefully misinterpreted and misunderstood.

That both industries are in a very bad way, there is no gainsaying, but this is not an argument for the annihilation of one supposed to be the weaker. There was a time when Leblanc soda-ash could hold its own against ammonia-soda, even when salt-cake—a necessary intermediate product of the manufacture—was selling at £3. per ton; but *nous avons changé tout cela*, and salt-cake to-day has been sold at as low a price as ten shillings per ton f.o.r. at the producers' works, while nitre-cake, containing 17 per cent. of free acid, can at the moment be had for the asking. That this is a very abnormal state of things there can be no question, and it has been brought about certainly by the introduction of ammonia-soda, which, having displaced Leblanc soda-ash, has caused salt-cake to come as a drug on the market. The recent installation of several ammonia-soda works, coupled with the jealousy of rival firms, has produced more ammonia-soda than can be sold in the ordinary state, and this has had the result of bringing down prices to a starvation rate, and of forcing several of the makers to turn ammonia soda to more profitable employment than the selling of it.

It is an open secret that the newer ammonia-soda works have failed to satisfy the aspirations of their promoters, and not one of them has had the success of the older established, so that one cannot help the thought that the circumstances of the past are not operating in the present, and that ammonia-soda, as well as Leblanc soda, is passing through a crisis that will require the best helmsman as pilot.

The article in the *Financial News* has been deftly inspired, but it is easy to see that the inspiration came from within the mystic circle, while the actual writer was without, as in no other way can we account for the hallucination as to the supposed sources of the United Alkali Co.'s profits.

The fact is, that the fall in value of salt-cake has, in a measure, been a blessing in disguise for the Leblanc process, and it may in the future be found that it has helped this industry in a way not dreamt of at the first. It is not many years since it was necessary to produce three tons of salt-cake for every ton of bleaching powder produced, and so long as the selling price of salt-cake was above £2., the combined operations yielded a fair amount of profit; but with salt-cake selling at ten shillings per ton, to carry on the manufacture thus would be ruinous.

But this is past history. The United Alkali Co. have not stood still; they have recognised, though somewhat tardily, that the make of salt-cake must be diminished while the production of bleach is not curtailed, and in those works wherein the Weldon process is employed, not more than 44 cwts. of salt-cake are produced to make the same quantity of bleach that formerly required 60 cwts. But this is not all: the greater portion of the bleach made by the United Alkali Co. is produced by the Deacon process, and in this the extraordinary production of $18\frac{1}{2}$ cwts. of salt to the ton of bleach has at last been reached. It may be that some of these improvements have been effected at a great expenditure of capital and additional working expenses, but still the fact remains that by the Deacon process one-third the quantity of salt-cake requisite by the old process, is made to produce the same quantity of bleach.

Referring to the statement in the *Financial News*, that "shareholders should bear in mind that the profit the Company has been accustomed to make on chlorate of potash is now almost a thing of the past," it may be reasonably inferred that the inspirer of the article in question is an old-fashioned technician who has not kept up with the times, for the statement is as untrue as anything possibly could be. In making chlorate by the method now adopted, not more than six tons of salt-cake are produced per ton of chlorate, while formerly not less than twenty tons were produced. The realised value of this saving alone amounts to over £10. per ton of chlorate.

If salt-cake should continue at its present low price, the United Alkali Company will benefit by the abolition of so much produce; if, on the other hand, it rises above the cost of manufacture, the Company will also benefit. If it continues at its present value, the manufacturer of caustic soda will about be able to make both ends meet, and it will be interesting at this juncture to inquire how a low price salt cake would affect the ammonia-soda trade. To do this a comparison of costs is inevitable—

	Cost per ton.	
	58% Ammonia Soda.	55% Leblanc Soda Ash.
Brine and pumping and charges.....	0 0 9	0 0 0
Limestone	0 4 6	0 6 6
Slack	0 9 0	0 13 9
Coke	0 1 3	0 0 0
Loss of ammonia	0 6 0	0 0 0
Wages	0 14 3	0 14 0
Management expenses, laboratory and office	0 3 6	0 2 0
Repairs, wages, and materials	0 5 6	0 4 6
General charges.....	0 14 0	0 4 6
Salt-cake at 11s.	0 0 0	0 16 8
	£2 18 9	£3 1 11

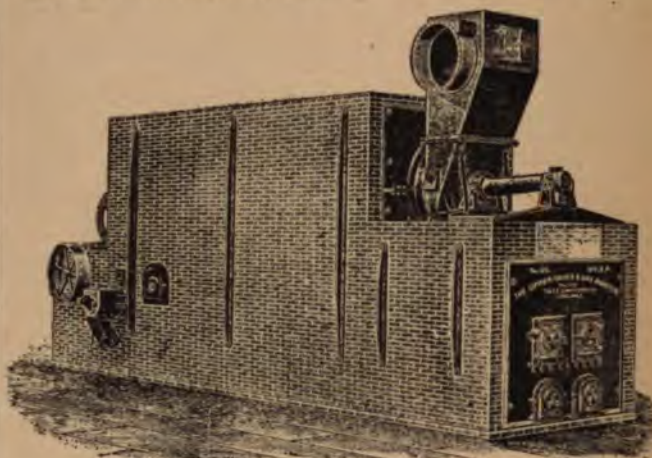
It will thus be seen that at present prices there cannot be much profit either in ammonia or Leblanc soda. It is, therefore, not surprising that the producers of the one should be casting about for new sources of profit, and that the others should be seeking by all the means in their power to reduce their operations to the scientific limit.

We have yet to deal with caustic soda. The ordinary manufacture, as carried out at most works outside the union, is just change for a shilling, even with a debased salt-cake, and there is only a small profit when the most improved methods of evaporation are employed, such as exist in the two works of the United Alkali Company at Widnes. Reckoning the cost price of ammonia-soda at £3., the manufacture of caustic soda with it as a basis cannot have much

in it when compared with salt-cake at 11s. As a matter of fact, there is not enough margin to cause us to believe in any serious reduction in price, while an already overstocked market is sure in the long run to bring about an understanding amongst all producers when the harvest which the common consumer has been reaping for some years will undoubtedly come to an end.

THE "CUMMER" AUTOMATIC DRYING MACHINES.

THE "Cummer" drying and calcining machines, although only introduced into the United Kingdom during the present year, are already being adopted by leading chemical manufacturers and others who have satisfied themselves by inspection and investigation that these machines are far in advance of the devices hitherto used for drying and calcining purposes. A brief description of these machines will therefore be of interest to our readers.



Front and Side View of Style "A" Standard Large Size Dryer

The above illustration gives a general idea of the style of machine used for ordinary purposes, but no less than six other styles of machines are made, so greatly do the requirements of manufacturing processes vary. Various sizes are made in each style.

The leading features are the same throughout, however, and are protected by patents in most countries. The furnace (which can be adapted for the use of coal, coke, wood, oil, or any other fuel) has mechanical draught; and complete combustion of the fuel is attained in the most economical manner, very high temperatures being attained. The whole of the heat generated is then applied to drying, provision being made for tempering the heat from the furnace to any point required. In most cases the heat is brought into direct contact with the material to be dried, and yet the finest materials when treated in this manner are perfectly uninjured in their cohesion or shades of colour. Materials that under ordinary circumstances can only be dried at low temperatures and consequently in a very expensive manner, are subjected in the "Cummer" drier to a sequence of temperatures, a great heat being applied to the material when very wet, diminishing as drying proceeds, so that while the expense and time of drying is enormously reduced, such materials as grains, fish and animal refuse, ochres, starch, glucose, superphosphates, &c., are treated without risk of injury.

The ordinary form of drying machine, as illustrated, is used for soda ash, nitrates, cement, sand, whiting, plaster, clay, ores, minerals, &c., and special styles of machines are made when it is desired to heat the material to any given high temperature in addition to drying it.

Among other uses we may mention the calcining of china clay for the manufacture of aluminous cake, the roasting of ores and minerals, the elimination of arsenic from copper precipitate, &c., &c.

The same economical principles of generating and applying heat are applied to the drying of manufactures which could not be put through the ordinary "Cummer" machines, such as bricks, timber, soap, &c. In fact there is scarcely a material to which the "Cummer" machines and methods cannot be adapted.

Another very important feature is the saving in labour. By various ingenious devices, even very wet and sticky materials can be automatically handled throughout, ensuring not only the very important reduction in labour, but perfectly uniform results such as can rarely be secured by manual work.

Capacity considered, the "Cummer" machines cost less than any other machines offered; and the machines are as durable as an ordinary boiler. Having regard to the great capacity, and labour and fuel-saving performance of these machines wherever used, we have no doubt they will shortly be in general demand among chemical manufacturers, as we have heard already that a large plant is about to be erected for soda ash by an important concern in the alkali trade.

Messrs. Charles Erith and Co., of 70, Gracechurch-street, London, will be glad to send full particulars to enquirers, and to refer intending buyers to users of these machines, so that they can be seen in operation.

GAS PURIFICATION AND SULPHATE PRODUCING.*

By W. BELTON.

BETWEEN two and three years ago the manufacture of sulphate of ammonia had to be discontinued at Shrewsbury owing to the impossibility of finding any outlet for the waste liquor resulting from the process, and owing to the distance from any chemical works, and consequent heavy cost of transport, the sale of ammoniacal liquor yielded a return that involved a serious reduction of revenue. In these circumstances, the author consulted with Messrs. Davis Bros., of Manchester, and with their assistance, as the result of a long series of careful experiments, a process was devised, which not only permitted the manufacture of sulphate without leaving any residual liquor for disposal, but also assisted in the purification of the gas. It is a brief outline of this process as now being worked at Shrewsbury that the author ventures to bring to your notice, thinking that it may interest other gas managers who may find it difficult to obtain good returns for their ammonia without affording any possible cause of complaint from residents or authorities in the locality. The process has been patented, both as to purification and sulphate making, and is now being worked as follows:—

Instead of using clean water over the last scrubber, an alkaline solution is used, preferably made up with what is known as "pure alkali" (carb. soda ash 58%), as most economical and convenient, though other alkalis are also suitable. After traversing the last scrubber, the solution passes to the liquor well, and mixes with the general stock of liquor (including that coming from the hydraulic main, &c.); from this well the liquor is continuously pumped over the first scrubber and washer, and a portion is sent to the sulphate works as required; there it is passed through the stills together with a further supply of alkaline solution, the ammonia extracted, and the waste gases condensed and purified in the ordinary manner. No liming is required in the stills, and the waste liquor does not, therefore, require any long period for settlement, but is pumped into a large pan fixed on the top of a destructor furnace, where a portion of it is evaporated sufficiently to dispose of the surplus water that would otherwise accumulate, but not far enough to produce crystallization. One portion of the liquor from this pan is then returned to be re-alkalised and again used over the scrubbers, and the other portion is run into a second evaporator, where it is reduced as far as conveniently possible, producing salt and a mother liquor containing a large proportion of sulpho-cyanide and some other compounds, while the steam and fumes from both evaporators are passed through the destructor furnace under the first evaporator, and are rendered harmless, and discharged into the boiler chimney. The salt thus obtained is valueless, except perhaps as a weed exterminator, but the mother liquor, amounting to about 1 gallon per ton of coal, may be treated for the recovery of any of its compounds. At Shrewsbury it is found advantageous to mix it with caustic lime and decompose it in an ordinary gas retort, when it yields a large volume of ammonia which is recovered in the scrubbers. The lime is afterwards lixiviated with water for the recovery of the soda, which is used over again in the process.

Several interesting features have been observed during the development of the process which may perhaps be of some interest. If sufficient of the alkaline liquor was sent over the scrubbers, it was found that it would effectually arrest the whole of the impurities except CS_2 , which was reduced, though not sufficiently, to meet Parliamentary requirements, and this action was most perfect at the lowest temperatures, but the bulk of liquor then requiring to be dealt with at the sulphate works was too large to render this mode of purification economical or convenient, and in consequence no more of the alkaline solution is now used than is necessary to arrest all the ammonia and cyanogen compounds; yet even under these conditions more purification work is obtained from the scrubbers, whose efficiency in the removal of CO_2 and H_2S is increased by an average of over 5 per cent. of the total impurities present in the foul gas. Another feature is a large reduction in the amount of fixed ammonia owing to the acids being

partially or wholly neutralised by the alkali present, so that the extraction of the ammonia gases in the sulphate still, is greatly facilitated, and liming becomes unnecessary.

The cyanides are not driven off in the still, but are retained in the liquor until finally concentrated in the second waste liquor evaporator.

There is also a large gain in the amount of ammonia recovered. At Shrewsbury, during twelve months' working, over 50 per cent. more sulphate has been produced than could formerly be obtained when using the same class of coal, although none of the concentrated liquor had been decomposed. It is somewhat difficult to account for this increase except on the ground that some complex nitrogen compounds, which were not decomposed and recovered as sulphate of ammonia, under the old process of liming the liquor in the still, are now arrested (or, perhaps, prevented from forming salts other than ammonia salts) by the use of the alkali, and that all the cyanide is now arrested in the scrubbers and brought under contribution. One of the primary objects kept in view in devising this process was the lessening of the bulk of liquor required to be disposed of in ordinary working, so as not to incur excessive cost for evaporation.

The adaptability of the liquor for re-alkalising and using again and again, until acquiring too great a degree of concentration, effectually accomplished this by enormously reducing the amount of clean water usually sent over the scrubbers, and practically leaving little more than the liquor coming from the hydraulic main to be evaporated.

The operation of sulphate-making under this process is extremely simple and very cleanly, quite free from any nuisance in all its stages, meeting the cordial approval of the Alkali Act Inspector.

Where there is a suitable outlet for the disposal of waste liquor, more profit might be made than where evaporation must be resorted to, as at Shrewsbury, but the process was not devised as a commercial venture; it was intended to make the manufacture of sulphate possible under circumstances otherwise prohibitive, yet it has proved more profitable (even with the cost of alkali, evaporation, &c.) than when the manufacture was carried on under the usual conditions, the net profit having been 20'33d. per ton of coal carbonised, the coal used being from North Wales and rather poor in ammonia.

It is not the author's intention to encumber this short sketch with details of working expenses or other figures, but the process may be seen in operation at Shrewsbury by anyone sufficiently interested, and any details desired will be willingly furnished.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for August. The total shipments were 81,794,641 gallons, compared with 92,161,174 gallons in August, 1893. The total for the eight months ending August 31, 1894, was 575,315,844 gallons, against 562,778,354 during the same period in 1893. The details of the shipments are as follows:—

CRUDE PETROLEUM.				Gallons.
Total August, 1894	..	..	..	11,358,405
" " 1893	..	..	..	13,462,874
NAPHTHAS.				
Total August, 1894	..	..	..	1,204,812
" " 1893	..	..	..	1,703,866
ILLUMINATING.				
Total August, 1894	..	..	..	66,199,256
" " 1893	..	..	..	73,082,164
LUBRICATING AND PARAFFIN.				
Total August, 1894	..	..	..	3,027,296
" " 1893	..	..	..	3,894,004
RESIDUUM.				
Total August, 1894	..	..	..	4,872
" " 1893	..	..	..	28,266

PRODUCING SUNLIGHT ARTIFICIALLY.—Sunlight can be produced on the earth at will according to Nicola Tesla, the eminent electrician. He says that the light of the sun is the result of electrical vibrations in the 94,000,000 miles of ether which separate us from that great luminary, and does not proceed from a great central fire, as the scientists have all along held. If these vibrations can be reproduced the light will follow. The rapidity of the vibrations in a second necessary to produce the desired result is, he says, expressed by the figure five with fourteen ciphers annexed; and he is now trying to build a machine which will produce these vibrations. The attempt will be of considerable scientific interest, whether carried to a successful issue or not.

*A paper read on Thursday, October 25th, 1894, before the Midland Association of Gas Manufacturers.

Legal Intelligence.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION.

(Before Mr. Justice Romer.)

WORTHINGTON PUMPING ENGINE COMPANY v. NAVAL CONSTRUCTION AND ARMAMENTS COMPANY (LIMITED).

This was a case raising points of considerable importance, but in the result no decision was given on the questions. The plaintiffs are an American company, carrying on business at 153, Queen Victoria-street, London, E.C. They sell, but do not manufacture, pumps or pumping engines called "Worthington pumps." The original Worthington pump was patented by Mr. H. R. Worthington in America in 1859. The patent was originally granted for 14 years, and was extended for seven years, coming to an end in 1880. The company was established in 1884, its principal object being to place on the European market the inventions of Mr. H. R. Worthington. It is apparently auxiliary to a company in America, which is the successor in business of Mr. Worthington and his partners, and the company last named, manufactures in America, the pumps sold in England and elsewhere by the plaintiff company and other auxiliary companies. The only people who have manufactured the pumps in England under the name of Worthington pumps are apparently (1) James Simpson and Co., Limited, who make certain kinds of Worthington pumps under a licence to do so from the manufacturing American company; and (2), according to the plaintiff company's allegations in the present action, the defendant company. The prominent peculiarity of the Worthington pump appears to be its valve motion. Two steam pumps are placed side by side and combined so as to act reciprocally on the steam valves of each other. Since the expiration of the patent the principle of the Worthington pump has been extensively adopted by manufacturers, but the pumps made by them have generally been advertised and sold as "Duplex pumps." The defendants are shipbuilders, and make pumps on the Worthington principle as parts of ships, and the present action was brought to restrain them from selling their pumps as "Worthington pumps." A number of witnesses were called on behalf of the plaintiff company, who said that the meaning of the term "Worthington pumps," as understood by engineers and manufacturers, was pumps manufactured by the Worthington people. At the conclusion of the evidence adduced on behalf of the plaintiff company,

Mr. Justice Romer said that it did not appear that any purchasers from the defendants had been led to believe, or had understood that the pumps supplied had been made or sold by the plaintiff company. Having regard to the pleadings, it could only be contended that the defendants had threatened and intended to sell their pumps as Worthington pumps. His Lordship said he was prepared to hear the defendants' evidence as to this, but suggested that the action should be dismissed, without costs.

Mr. Moulton, Q.C., said his clients would consent to this if the defendants would say they had no intention to pass off their pumps as Worthington pumps, and in such a way as to lead purchasers to suppose they were pumps supplied by the plaintiff company.

The defendant company agreed to this upon the imputation of fraud being withdrawn.

COURT OF APPEAL.

(Before the Master of the Rolls, Lord Justices Lopes and Rigby.)

REDDAWAY v. BANHAM.

This case was an adjourned hearing of an appeal of the defendants George Banham and Co., Pendleton, for judgment or a new trial from the verdict and judgment, dated July 31, 1894, at the trial before Mr. Justice Collins and a special jury at Manchester. Mr. Bigham, Q.C., and Mr. M'Call, Q.C., were for the appellants, and Mr. Gully, Q.C., for the respondents, Reddaway and Company, Limited, Manchester, the plaintiffs. The action arose on the alleged use by the defendants of the word "Camel" in the sale of their camel-hair belting, this word "Camel" or "camel-hair" having become by custom and usage in years past the sole property of the plaintiffs. Mr. Bigham continuing his arguments held that his clients' goods were camel hair and that they were entitled to describe them so. The Master of the Rolls: Do they pull the hair off a live camel?—Mr. Bigham: Yes, my lord. (Laughter.) It comes in thousands of tons from Russia and China. The fact is that the beasts shed their hair each spring.—The Master of the Rolls expressed his wonder that the case had not driven Mr. Justice Collins mad. (Laughter.) The defendants contended that their goods were camel hair, and that they were perfectly entitled to use the term complained of, inasmuch as it simply described the goods in truth and in fact.—Their Lordships reserved judgment.

SALFORD HUNDRED SESSIONS.

(Before Mr. J. Addison, Q.C., M.P., Chairman, and other Justices.)

BARLOW, APPELLANT; THE COUNTY JUSTICES OF LANCASHIRE, BURY DIVISION, RESPONDENTS.

This was an appeal by Mr. E. Barlow, dyer and bleacher, Nursery Works, Chapelfield, Radcliffe, against a decision of the County Justices sitting at Bury, who, upon the action of the Mersey and Irwell Joint Committee, had imposed penalties upon the appellant for the pollution of a stream known as the Whitefield Brook, which runs into the River Irwell. The case for the respondents was that the appellant had works at the top of a clough, through which the Whitefield Brook ran, and that the brook was polluted by the effluent from the works. For the appellant it was contended that he had turned the effluent into what was really a sewer, and not a stream, and also that the officials of the Joint Committee had not taken their samples of the polluted effluent from the proper place, that the samples were, in fact, not taken from the effluent from the appellant's works. If the court held that the so-called stream was a public sewer, then it was contended the Radcliffe Local Board were the responsible party, as under the Public Health Act, 1875, all sewers were vested in the local authority. For the appellant Mr. R. Smith urged that the order of the justices ought not to be sustained, as it required the appellant to construct works which should deal with the effluent. If the appellant gave up his manufacture it would be distinctly wrong that he should, nevertheless, be required to erect works. Evidence was also taken to show that the brook, or so much of it as took the effluent from the works, was a public sewer, and that it drained a whole district known as Chapelfield.—After the conclusion of the appellant's case the Chairman said there was something deserving of consideration in Mr. Smith's contention that the court had no power to order the construction of works. That, however, he need not now consider. The court found themselves compelled to allow the appeal. There were circumstances in the case, however, which led the court, although allowing the appeal, not to allow the costs. Conviction quashed accordingly, without costs.

GAS MANUFACTURE.

[By J. J. JOHNSON.]

(Concluded from p. 257.)

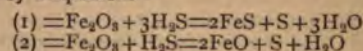
The gas passes from the outlet of the scrubbers to the inlet of purifiers, and although purification is going on from the hydraulic main downwards, still, here has to be effected the most troublesome and expensive part of purification. The vessels are usually made of cast iron, from 4ft. 6in. to 5ft. 6in. deep; square or oblong in shape, the area being proportioned to the amount of gas passed through them. Each vessel contains 4 to 6 rows of sieves, on which is laid the material in use, to a depth of 6 to 8 inches. The number of vessels used and the method of extracting the individual impurities varies, but one of the two systems about to be described is nearly always found in large or average sized works. No. 1 is called the Progressive System. This usually has 8 vessels working in pairs, called respectively carbonates, oxides, sulphurs, and checks.

The first pair is for the removal of carbon dioxide, and contain for this purpose slaked lime; the greater percentage of pure lime and the less the silicious and clayey matter the better. Re-action= $\text{CaH}_2\text{O}_2 + \text{CO}_2 = \text{CaCO}_3 + \text{H}_2\text{O}$. The oxides are for the removal of sulphuretted hydrogen, and are charged with a substance known as bog ore, an impure kind of hydrated ferric oxide $\text{Fe}_2\text{O}_3 \cdot 3\text{H}_2\text{O}$; this is mixed with a third of its bulk of sawdust to add to its porosity, before putting into the purifier. On taking up a certain percentage of sulphur according to the purity and activity of the oxide, it becomes foul and is then removed from the vessel, placed in heaps for a few hours, and then exposed to the oxidising influence of the air in thin layers, for two or three days, during which time it is watered and turned over thoroughly.

The oxide is by this means revived, and is once more fit for use.

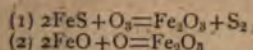
When the mass contains from 40 to 50% of sulphur it is sold to the sulphuric acid manufacturer, who burns it and gets therefrom the sulphur.

Leaving the water out for simplicity, the action in the purifier, says Professor Wanklyn, in his Gas Engineers' Chemical Manual, may be represented by 2 equations—



and judging from the amount of SH_2 taken up by a given weight of oxide, also the little sulphuretted hydrogen given off on the addition of an acid, he says, it would appear that No. 2 expresses the chief part of the change. But against that must be weighed the fact that oxide, after being in action a short time, takes up bisulphide of carbon, point-

ing to the formation of a sulphide of iron. The reaction on exposure to air is—



turning from a greenish-black substance, when foul, to a reddish-brown colour.

The next two vessels are filled with clean lime, through which the gas containing SH_2 is made to pass. The sulphuretted hydrogen combines with the lime, forming calcium sulphide. When this is attained the gas is once more directed into the oxide vessels from which it has been diverted. These abstract the SH_2 , and on the gas passing through the "sulphurs," it loses most of its bisulphide of carbon, and is generally said to form calcium sulpho-carbonate thus: $\text{CaS} + \text{S}_2 = \text{CaCS}_2$.

Some researches by Velej, however, in which he passed hydrogen saturated with bisulphide of carbon over perfectly anhydrous calcium sulphide, points to a somewhat more complicated equation, viz., that the bisulphide was not taken up by the calcium sulphide till water was added, forming calcium hydroxysulphide thus: $\text{CaS} + \text{H}_2\text{O} = \text{Ca(OH)HS}$.

This forming with the addition of the CS_2 a compound called basic calcic thio-carbonate $2\text{Ca(OH)HS} + \text{CS}_2 = \text{Ca(HO)}_2\text{CaCS}_3 + \text{H}_2\text{S}$. The gas is now directed to the checks, where it is freed from its sulphuretted hydrogen by lime or Weldon mud, an impure form of manganese dioxide introduced for gas purification by Messrs. Salamon and Hood, a material which remains active for a much longer period than lime.

(2.) The rotary system of purification.

This process has only 6 vessels, 4 charged with lime, and 2 checks charged with oxide. The first two lime vessels take up the carbon dioxide; the third the sulphuretted hydrogen, giving it off as the CO_2 comes forward. This sulphuretted hydrogen is taken up by the fourth, lime converting it partially into a "sulphide," acting in the same way with bisulphide of carbon, as in the progressive system. The gas now passes to the checks which abstract any sulphuretted hydrogen it may contain, and from here passes to the station meters to be measured, and from thence to the gasholders. Should enrichment other than cannel be used for increasing the luminosity, such as oil gas or carburetted water gas, it is usual to pass the richer stream into the coal gas between the meters and gasholders; though at some works carburetting is done at the outlet of the holders.

The gas is now tested for its illuminating power, which in London has to be not less than 16 candles, and to contain no SH_2 , not more than 4 grains of NH_3 , or 17 to 21 grains of sulphur according to the season of the year. The finished product is now distributed in cast iron mains and through meters in the usual way.

Through the kindness of Messrs. W. and B. Cowan, I am able to show you an automatic meter with model of prepayment apparatus. With these, gas companies have been able to extend their field of supply to the British workmen.

In Ipswich alone 1,000 of these meters were fixed in one year, and at the same meeting where the above was mentioned a manager said that 17% of his prepayment customers took gas cooking stoves.

Coal gas is used for the generation of light, heat, and power. The quantity of light developed by the consumption of a certain quantity of gas depends largely on the particular burner with which it is used.

Burners can be divided in 4 classes: (1) flat flame, (2) argand, (3) regenerative, (4) incandescent. A good flat flame burner will give a light of 2.6 to 2.8 candles per cubic foot of 16 candle gas burnt. I strongly advise consumers to get what are termed governor burners, that is, those which regulate the consumption and control the pressure, as Sugg's, Hawkins' Barton's, and Peebles, etc. An argand burner emits a light of 3.3 to 3.5, regenerative 7 to 10, and incandescent 10 candles and upwards per cubic foot of gas burnt.

Often the use of gas is disapproved of by chemists on account of the products of combustion given off into the air when it is burning. First, I wish to show that the air is not vitiated to the extent thought. Prof. Lewes states that on consuming 100 cubic feet of gas at the rate of 20 feet per hour in a sitting-room 16 x 12 x 12 feet high, having the door shut, and containing two occupants, the amount of CO_2 in the air should be 2%, but, on experiment, it is found to be about 0.18%, or about $\frac{1}{5}$ the impurity evolved, showing the air of the room was changed at least twice an hour during that period in which the gas has been burning.

And lastly, this objection can be met with the fact that it is not only possible to get rid of the products of combustion, but also to make them effect the ventilation of the apartment.

The Vertmarche burner, a specimen of which I am, through the kindness of Messrs. H. Greene and Sons, able to show you, is especially suited to the ventilation process. It is claimed that it gives 10 candles per cubic foot of gas burnt, and offers advantage over many regenerative burners on account of its non-liability to block up with carbon. I may also state

that the regenerative burner can be obtained to burn as little as three and a half feet per hour. The method of ventilation previously mentioned is carried out by passing the products of combustion—hot gases from regenerative burner or burners through a flue having a good up-draught. There is also connected with the flue small passages from the outside of burner. The ascending gases cause a partial vacuum, taking up with it the foul air of the apartment.

The consumption for heating purposes is growing, and we all know what an invaluable heat agent it proves in the chemical laboratory.

Gas stoves are also being largely adopted, in fact, so extensively that most gas companies let them out on hire at quarterly rentals. They reduce the work considerably, and in the summer time with ordinary care are cheaper than coal. A good heating stove for the office is the condensing stove. This burns the gas in an argand burner, the products of combustion going up into the stove and drawing with it a current of air. The stove is made up of a number of tubes, and going through these the condensable vapours are condensed, taking up some of the CO_2 , etc., and falling into a pan placed at the bottom of the stove for receiving them. Experience with one in an office 16 x 14 x 10 ft. high, showed it never allowed the temperature to drop lower than 54° to 56° Fahr., the outside temperature being 12° to 14° below zero; though the consumption of gas was only 8 ft. per hour. Lastly, coal gas is used for power, being much cheaper than steam when power is required only intermittently, as in the removal of sewerage, small engineers' shops, bakeries, mills, etc.; the ease with which they can be started at a minute's notice, and the small amount of attention they require, is largely in their favour. As an example of the extent to which they are adopted, I quote figures given by the manager of the Corporation Gas Works, Leicester. In that town there are no less than 413 gas engines, varying in size from 1 man to 20 horse power, whose consumption of gas is just 8.5% of the total consumption, or about 92,000,000 cubic feet.

RECENT CUSTOMS DECISIONS.

PETROLEUM RESIDUUM.

THIS was an appeal by Messrs. Schoellkopf, Hartford and Madagan against the action of the Collector at New York as to the rate and amount of duties properly collectible on certain residuum of petroleum, imported June 19th, 1893. The following is the opinion by General Appraiser Lunt:—

We find that Messrs. Schoellkopf, Hartford and Madagan imported into the port of New York certain merchandise, upon which duty was assessed at 25% *ad valorem* under paragraph 76, and which the importers claimed to be free of duty under paragraph 496, as bitumen, or paragraph 651; or, as covered by paragraph 19 or section 4, of the Act of October 1, 1890, and dutiable at 20% *ad valorem*; that said merchandise consists of the residuum obtained in the distillation of petroleum, and partakes of the nature of pitch or bitumen; but the same is not crude bitumen, and is not a coal-tar preparation, but is a manufactured product, not specially provided for in the Tariff Act.

We sustain the claim that it is dutiable, under section 4, at 20% *ad valorem*.

ORTHOTOLUIDINE.

This was an appeal by the Roessler and Hasslacher Chemical Co. against the action of the Collector of Customs at New York as to the rate and amount of duties properly collectible on certain orthotoluidine, imported June 6, 1894. Opinion by General Appraiser Lunt was as follows:—

We find that the Roessler and Hasslacher Chemical Co. imported into the port of New York a quantity of orthotoluidine, which was assessed with duty at 20% *ad valorem*, under paragraph 19, as a coal-tar preparation, and which is claimed to be free under paragraph 661, as aniline oil; that orthotoluidine is a coal-tar preparation, a chemical compound, and is commercially known as an aniline oil. It differs in its chemical constitution from the toluidine base, passed upon in G. A. 1842.

The protest is sustained.

THE SAN PABLO NITRATE CO., LIMITED.—The net profit for the year is £16,786. 10s. 3d., to which has to be added the balance brought forward from last year, viz., £1,542. 6s. 8d., making a total to the credit of profit and loss account of £18,328. 16s. 11d. The directors now recommend that a further dividend of 2½ per cent. be paid, viz., £4,000., making 19 per cent. for the year, that £1,000. be placed to depreciation account, £1,000. to the reserve fund, and that the balance of £328. 16s. 11d. be carried forward. The report states that, although not so good as anticipated, the year's working is considered by the directors as satisfactory, taking into account that the whole of the stocks and other assets have been brought down to a sterling valuation of 11¼d. per dollar, the rate at June 30 last.

Our Book Shelf.

RHODOLOGIA. By J. Ch. Sawyer. 93 pp. Brighton: W. J. Smith, 1894. 2s. 6d. Illustrated.

This brochure consists of a discourse on roses and the odour of the rose, and is quite up to what is to be expected from the author of "Odorographia." Its object is to afford information about an industry which is capable of considerable extension, the demand for the manufactured product being an increasing one. The information is full and explicit, suited alike to the requirements of the student and manufacturing chemist. The nature of the perfume of the rose, its formation, and the methods of distilling in India, Bulgaria, Germany, and France, are in turn dealt with. The rest of the pamphlet is devoted to perfumes resembling the rose, such as geranium oil. Their chemical constitution and similar particulars as to tests for purity are given, as well as the physical properties, methods of cultivation, and distillation. The cultivation of roses and the manufacture of otto of rose and rosewater appears to be most scientifically and successfully carried out at Miltitz, near Liepsic, German thoroughness having made its mark on this industry, as well as others that might be mentioned.

WATTS' DICTIONARY OF CHEMISTRY. By M. M. P. Muir and H. Forster Morley. Vol. IV., with addenda. 992 p.p. London: Longmans, Green, and Co. 1894. 63s.

The publication of this volume brings to a close a task of colossal proportions, which, nevertheless, has been accomplished with remarkable thoroughness. Considering the rate at which chemical science is progressing, the authors are to be congratulated upon the manner in which they have succeeded in getting so much recent work into their dictionary. To make the same as complete as possible, an addenda dealing with some of the most recent advances in inorganic chemistry has been compiled. For very obvious reasons organic chemistry has not been so dealt with. As it is, on casting the eye over this last volume of the dictionary, the predominance of organic compounds, shows that a dictionary of organic chemistry, pure and simple, will in a very short while be an absolute necessity, if dictionaries of chemistry are to be kept within reasonable proportions.

This fourth and last volume covers from Phenyl azoxazole to Zirconium. The first article of importance is that dealing with phosphates, including phosphorus and phosphoric acid. Further on, Prof. Meldola contributes a most interesting article on "Photographic Chemistry." Considerable attention is given to physical methods used in chemistry, this article being perhaps the most important in the volume. It is divided into fourteen sections. Of these, eight are only briefly touched upon, the references merely being given. The remaining six are dealt with fully. Passing capillarity, dialysis and diffusion, electrical methods receive able and somewhat lengthy treatment by Prof. Ostwald. Optical methods are necessarily subjected to further classification, the spectroscopic section being dealt with by Prof. Hartley. Prof. Muir contributes Thermal methods and Mr. Capstick, Viscosity.

The next items which receive special notice are Platinum and Potassium and its compounds, followed by an article on Proteids. In turn we must notice, in passing, quinine and resins, the latter being very briefly referred to. Under the heading of "Salts" a most interesting article is to be found, after which silicon, silicates, silver, and sodium receive more or less attention. In connection with sodium only the commonest and rarer salts are described, the others being disposed of by a collective reference, a step which the proportions of the volume renders advisable. It would be surprising if Solution did not receive ample treatment, after which starch, sugars, sulphates and sulphur, tannin, tartaric acid, tin, water, and zinc constitute the remaining principal subjects.

The addenda deals with the researches of Moissan, Mond, and others, and includes a brief review of recent work upon ammonium chromates, cobalt, nickel, iron carbonyl, mercury compounds, and new minerals in which the rarer elements have been found to occur.

Thus the most exhaustive and up-to-date work of reference in connection with chemistry has been successfully completed. How greatly such a work was needed can be seen by comparing for a moment this work with older works of the same stamp. Though no dictionary of this kind can be absolutely complete, it will be a long while before the present work becomes obsolete, and those who fail to secure a copy of the entire work, will doubtless regret not having done so, when copies of this dictionary have become scarcer. A word of praise is also due to the publishers for the way in which their share of the task has been performed, as there has been a striking absence of typographical errors from first to last, albeit such errors would be more or less excusable considering the nature of some of the matter.

A TEXT BOOK OF INORGANIC CHEMISTRY. By G. S. Newth. 667 p.p., including index. 146 illustrations. London: Longmans, Green, and Co. 1894. 6s 6d.

There is not much scope for originality in writing a text book of inorganic chemistry. The chief opportunities for displaying ability lay in the arrangement and the limitation of subjects.

The periodic classification of the elements does not lend itself readily to the formation of the basis of a text book. This classification, however, has been adopted by the author in the main, but he has subjected the method to certain alterations, which result in an arrangement virtually his own. Though it is not quite clear why an attempt to follow the periodic classification is requisite, there are certainly some advantages about the arrangement which has been planned by the author, and the hints to students which follow the preface are a wise and useful addition, ensuring the student using the book in the fashion intended by the author, a thing which many students never do.

The work is divided into three parts. Part I. gives particulars of the theories and physico-chemical principles upon which the science of chemistry is based. This part is well arranged so as to give prominence to the most important rules, one or two of the experimental instances of which are quite out of the usual.

In Part II. the four typical elements, hydrogen, oxygen, nitrogen, and carbon, have been dislodged from their place in Mendeleeff's table, and placed together for special study. The idea is to instruct the student in the simpler and more familiar portions of the science prior to studying the other elements and their somewhat complicated compounds. In this part the properties and phenomena of water, combustion, flame, and air are dealt with, in addition to the previously named elements.

Part III. contains the remainder of the commoner elements, arranged in accordance with the periodic law. The so-called rare elements have been omitted, as they are really beyond the scope of a *bona-fide* text-book. Fluorine is well treated, as is also chlorine. The author's opinion upon the constitution of bleaching powder is very apparent, but he has not failed to represent both sides of the question. Under this heading mention should be made of the brief illustrated account of both the Deacon and Weldon processes for the preparation of chlorine, which forms a pleasing departure from the usual stereotyped text-book description. Sulphuric acid is also treated rather more technically than usual, the illustration of a vitriol plant in particular affording a great relief, as it is generally necessary to strengthen the nerves before contemplating some of the masses of misrepresentation which disfigure certain text-books. In dealing with the metals, metallurgical processes have been ignored as far as the chemical reactions are concerned.

The great feature about the book is that it is not cast upon the lines of any syllabus, being intended to be an educational work, and not a "cram" book. In regard to the illustrations, which in text-books do so much to frame the students' ideas, the work is unique and positively refreshing. The text is thoroughly up to date, even so far as to give currency to another gaseous constituent of air, the discovery of which Lord Rayleigh and Prof. Ramsay announced only two months ago. At the same time the requirements of the student have not been forgotten, technical descriptions being scarce. In short, the work aims at being a genuine text-book of the science of chemistry, and ably fulfils its object, being one of the best theoretical text-books we have met with for a long time.

ANSWERS TO CORRESPONDENTS.

F. B.—Hardly suitable.

T. L. B.—We are arranging for a report.

C. E. AND CO.—We will return it as soon as done with.

R. B. P.—It has been attended to.

J. H.—We are obliged for notice duly received.

J. M.—The same as last year.

X.—There will be an account in the next issue.

GRAVITY.—Three halfpence for postage is all that is required.

THE PROPOSED COMMERCIAL COURT.—Legal circles are full of rumours respecting the draft constitution of a commercial court which Lord Russell of Killowen has framed since his appointment to the high office of Lord Chief Justice of England. It is reported that the new court for the trial of mercantile causes will have three special judges nominated by the justices of the Queen's Bench division, of whom the Lord Chief Justice shall be one. It will also have a special jury panel, which will secure for the trial of the cases specially qualified men. The business of this court is, it is said, to be restricted to matters mercantile by a process of exclusion of other causes of action, the list being under the control of a special officer controlled by the judges on the panel. Assessors and an official referee are to be associated with the judges, so that the technical issues may be decided with the aid of experts, whilst questions involving prolonged hearing, inconvenient for a jury, may be at once disposed of.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending October 6th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'33	9'82	0'26	Nil.
South Metropolitan Gas Co.	6	16'58	10'26	0'43	Nil.
Commercial Gas Co.	2	16'3	7'9	0'45	Nil.

The supply for the week ending Oct. 13th was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'31	10'04	0'26	Nil.
South Metropolitan Gas Co.	6	16'58	10'48	0'38	Nil.
Commercial Gas Co.	2	16'25	7'45	0'45	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Trade Notes.

ANOTHER LAMP ACCIDENT.—Mr. Cronin's drapery establishment at Kantork has been burned to the ground. Mrs. Cronin and a lady friend perished in the flames. The fire was caused by a lamp exploding.

REDUCED WAGES IN THE GLASS TRADE.—The employes of the extensive sheet glass works of Messrs. Pilkington Bros., St. Helens, have, it is reported, received notice of a reduction amounting to 10 per cent. on glassblowers, and 5 per cent. on glass-gatherers.

PRESERVING MILK WITH OXYGEN.—The milk as drawn from the cow is enclosed in tightly-fitting recipients, into which compressed oxygen is introduced, and it is then placed in 100 litre cans at a pressure of two atmospheres. It can then be preserved for two months without suffering any change.

SOCIETY OF CHEMICAL INDUSTRY. London Section.—The first meeting of the session will be held at Burlington House, on Monday, November 5th, at 8 p.m., when a paper on "The Composition and Constitution of Certain Alloys," by the late Dr. C. R. Alder Wright, will be read by Mr. Watson Smith. Mr. W. F. Reid will also contribute a note on "Oxidised Linseed Oil."

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—The opening meeting of this section will be held on Wednesday, November 7th, at University College, at 7-30 p.m., when the Chairman of the Section (Mr. E. Carey) will deliver his opening address on "The Invasion of the Inventor."

THE LEICESTER WATER FAMINE.—After a month of remarkable drought and empty reservoirs, which has involved a large expenditure on temporary works, heavy rainfall has brought a most welcome relief to the water supply at Leicester. Further curtailment of the service and stoppage of factories will now be avoided, but all the five temporary wells will be continued pumping night and day, and others completed to permit storage of water to avoid water famine next summer.

LEAD-POISONING IN THE FILE TRADE.—An inquest was held at Willenhall, Staffordshire, last week, upon the body of John Heywood, 47, a file-cutter. The evidence showed that his trade necessitated the use of lead blocks. He had suffered from lead-poisoning for some time, and this had affected his hands and teeth. Neither masks nor respirators, it was stated, could stop the entrance of the fatal lead dust into the workmen's systems. The coroner ordered a post-mortem examination, and declared that he should communicate the facts of the case to the Home Secretary. Deceased had been in the Wolverhampton Hospital several times from lead-poisoning.

PYRITES DEPOSITS OF LAPLAND.—The growth but a small demand. pyrites at Sulitjelma in Norwegian Lapland, which was 3s. 7½d. to a small extent during the last four years, are now to be again large scale. The company which owns them is preparing to open, 4½d. to the necessary plant.

DUTCH MADDER.—Messrs. Bunge & Co., of Rotterdam, report prices market as quiet and prices easier. The quality of the new crop is not of the best, being dark coloured, but an improvement is anticipated with the advent of colder weather. Fine crop is quoted 34s. to 35s. per cwt. Fine Ombros, 24s. to 25s.; Roots, 17s. per cwt.

CYANIDE PROCESS IN SOUTH AFRICA.—The Siemens-Halske cyanide process for gold recovery is being adopted by the Metropolitan, Day Consolidated, and New Croesus Mines, and the first results, apart from those already obtained at the Worcester works, may be expected in a month or two. The royalty has been definitely fixed at 3 per cent. **CHEM. FAB. VOR. GEROMONT GOLDENBERGER & CO.**—The new compound called Lactophenin, recently introduced by this firm for the treatment of typhus and rheumatism, was spoken highly of at the 1st Congress, at Rome, and is now beginning to excite interest in the circle of specialists, who first gave their attention to the virtues of this new remedy.

STASSFURT INDUSTRY.—An important branch of the Stassfurt industry is the manufacture of carbonate of potash from the sulphate and chloride of potash, for which several processes are employed, notably the Le Blanc method, and another of later date invented by Engel and further perfected by the chemists of the works at Neu-Stassfurt, where it is employed.

EXPLOSION AT A SUGAR WORKS.—On Monday, between 5 and 6 o'clock in the evening, a copper converter at the sugar works of Messrs. Bostock and Co., King-street, Garston, near Liverpool, exploded from some unexplained cause, wrecking the building in which it stood, killing three men and injuring others. It is said that the converter was calculated to bear a pressure of 300lb., and that there was a pressure of only 60lb. a few minutes before the explosion.

SOUTHAMPTON AND THE PETROLEUM TRADE.—The Southampton Harbour Board has again had under consideration the question of allowing the petroleum trade to be carried on in the port. It was stated the officials had visited several ports, and they recommended the adoption of stringent bye-laws and specially constructed vessels, and then the trade could be carried on with safety. The matter was referred to Committee.

EXPLOSION AT MASON COLLEGE.—The necessity for care in using the oxyhydrogen lime light, especially when bags are employed, was again proved by an explosion which took place on Thursday night at Mason College, Birmingham. A lecture to a class of students in the Biological Theatre was concluding, and the assistant in charge of the lantern apparatus was removing the weights from the gas bags, when the two gases mixed, and a violent explosion occurred, injuring two of the students, damaging a number of the fittings of the theatre, and breaking all the windows.

GRAVEL IN NITRO-GLYCERINE.—An explosion occurred at the Government cordite works at Waltham Abbey recently. Some cordite was being passed through the hydraulic rammer when an explosion took place, blowing down a man and rendering him insensible. The officials are of opinion that some grains of gravel had got mixed with the materials used. Several times, recently, grit has been detected in the nitro-glycerine obtained from private firms. Though it is all carefully sifted some particles often escape notice.

THE NEW COLLEGE HALL AT LEEDS.—The new hall and library of the Yorkshire College, Leeds, opened recently by the Duke and Duchess of York, form a striking and handsome feature of the south block of the college buildings. Built in the perpendicular Gothic style, they harmonise with the other parts of the architect's original design, which is now by this addition carried three-fourths of the way towards completion. The cost of construction and furnishing has been about £20,000. The College has just entered upon the twentieth year of its existence, and has now 500 day, 400 evening, and 200 medical students.

THE INSTITUTE OF CHEMISTRY.—At the examination in Practical Chemistry for admission to the membership of this Institute, held at the Laboratories at 30, Bloomsbury Square, from 9th to 12th ult., 17 candidates presented themselves, of whom the following 13 were successful:—W. H. Archdeacon (Yorkshire College, Leeds); W. Barlow (Royal College of Science, Dublin); Miss L. E. Boole (Pharmaceutical Society's Research Laboratory); F. H. Carr (Finsbury Technical College and Pharmaceutical Society's Research Laboratory); M. E. Feilmann, B. Sc. (University College, Nottingham); E. Halliwell (Yorkshire College, Leeds); E. S. Hanes (Finsbury Technical College); H. Hastings (Yorkshire College, Leeds, and student under W. Russell, F.I.C.); P. H. Jones (University College, Liverpool); W. T. Rigby (University College, Nottingham); J. S. Robertson (Glasgow and West of Scotland Technical College); E. T. Shelbourn, (University College, Nottingham); and W. Thomason, (University College, Liverpool).

EXHIBITS HOME.—The Judge of the City of London heard a case in which the plaintiffs, Messrs. [illegible] and Co., foreign carriers, Lime-street, E.C., sued [illegible] Bros., Limited, soap manufacturers, Upper Thames-st., and Liverpool, to recover the sum of £21. odd for bringing [illegible] Chicago exhibit of fancy soaps, &c., from Chicago to Liverpool at the close of the exhibition last year. The matter now came before the Court by the way of an application by the defendants, who wished to know how the plaintiffs made up their charges, and to whom the money sued for had been paid. The plaintiffs' answer was that they had paid the charges to their New York firm. The defendants said that was nonsense, and that it was no answer at all to say that the plaintiffs had paid the money to themselves. As a matter of fact, said the defendants' counsel, the plaintiffs had only paid the sum of five guineas, although they had already charged the defendants £30. The learned Judge said he did not think the defendants were entitled to any more information than the plaintiffs had supplied to them, and the application must therefore be refused. His impression, the learned Judge added, was that the defendants did not want to pay at all.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is no appreciable change in the position of tar products. Benzols keeps fairly steady: 1s. 2½d. for 90's and 1s. 2d. for 50/90's. Naphtha and carbolic acid continue rather weak: prices for crude carbolic and crystals, however, remain unchanged; solvent is a fraction cheaper at 1s. 2d. Pitch is firm at 41s. per ton, f.o.b. East Coast, for prompt, and 39s. to 40s. for forward.

The sulphate of ammonia market keeps firm. Purchases have largely been effected by consumers. Beckton value is £12. 10s., London outside makes £12. 10s. to £12. 12s. 6d., Liverpool £12. 10s. to £12. 12s. 6d., Hull £12. 10s., and Leith £12. 12s. 6d. Forward has been bid and refused for January-March at £13. 2s. 6d.

REPORT ON MANURE MATERIAL.

Throughout the week the market has been very quiet, prices remaining without material alteration. Buyers do not follow the higher prices demanded for 75/80% Florida rock, 1895 steamer shipment, the only business reported being a cargo for prompt shipment, for which a low price has been accepted. The nearest value of South Carolina River rock, 55/60%, is 6¼d. per unit; of Peace River rock, 60/65%, 6½d. per unit; and of Algerian, 55/60%, 6¼d. per unit, in cargoes c. f. & i. to good United Kingdom ports. There is nothing fresh to report in River Plate bones, the low price of East Indian bone meal spoiling the chances of sellers of River Plate cargoes. Crushed Kurrachee bones, for forward shipment, offer at £4 12s. 6d., ex ship Hull or ex quay Liverpool, and Bombay bone meal, December-January steamer shipment, at the same price, Hull, Liverpool, or Glasgow. Common grinding bones find a good market at Liverpool. Nitrate of soda is unchanged: on spot ordinary quality may be had at 8s. 9d. per cwt., and refined quality at 8s. 10½d. per cwt. Due cargoes are worth barely 8s. 10½d. per cwt., and later shipments not over 9s. per cwt.

MISCELLANEOUS CHEMICAL MARKET.

There is little change in the general position of trade in alkalis. The spot demand for bleaching powder is, if anything, rather less active, but the price is nominally still £7. 10s. at makers' works; some odd lots are offered, however, at 5s. per ton lower. Caustic soda is in better demand, and prices are as last reported, viz.:—f.o.b. Tyne, 77%, £10. 10s.; f.o.b. Liverpool, 74%, £9. 10s.; 70%, £8. 10s.; 60%, £7. 10s. per ton, in 10-ton lots and upwards. Ammonia alkali seems to be rather steadier in price, but current quotations remain at £3. 2s. 6d., f.o.r. Soda crystals continue neglected. Chlorate of potash and soda are unchanged, either for prompt or forward, and business in these products is somewhat dull. Sulphate of copper is still quoted at £14. 15s. per ton, f.o.b. Acetates of lime, in brown and grey qualities, are rather easier, and acetates generally are without improvement. Yellow prussiate of potash, 10¼d. to 10½d. per lb., with a fair inquiry. Potash, caustic and carbonate, are in active request for good qualities, and prices are well maintained. Borax and boracic acid are still ruling at low rates, and without any improvement

in demand meantime. In carbolic acids the tone of the generally is weak. White powdered arsenic continues in good demand, and firm in price at £14. 2s. 6d. to £14. 5s. For nitrate of soda, spot quotation is 8s. 10½d. Miscellaneous chemicals for textile are generally at a discount.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Since the close of the mining strike, the Scotch dyers and printers have got into a much steadier run of employment, and the market for dye chemicals is slightly firmer in consequence, and disposed to a rise. Combination amongst the calico printers is once more under discussion, and with rather a better prospect of something practical coming out of it. The movement is headed by the English works, and although all the Scotch printers are not to join the combination, a number of them will, if the affair goes on.

Over the general chemicals market the feeling is towards increased weakness, and prices tend downward, particularly in caustic soda, soda crystals, bleach, and sulphate of copper. The lowering action of the independent makers of alkaline products is beginning to tell unmistakably.

Mineral oils and paraffins are still in active production and large deliveries, under contracts, but at prices too low for much profit to makers.

Last week, sulphate of ammonia experienced a sharp recovery, particularly towards the close, when prompt price rose to £12. 15s., and forward dealing was carried through at £13., f.o.b., Leith.

Chief prices current are:—Soda crystals £1. 19s. to £2. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; causticsoda, white, 74° £9. 12s. 6d., 70/72° £8. 10s., 60/62° £7. 10s.; and cream 60/62° £7. 7s. 6d., all nett, Liverpool; bleaching powder £7. 10s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4¼d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3¼d. nett, f.o.b. Glasgow); chlorate of potash, 5¼d. less 5%, Liverpool; nitrate of soda, 9s. 1½d.; sulphate of ammonia, £12. 15s. to £12. 17s. 6d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¾d., soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 15s., to £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 23,277 bags beet.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are without alteration in position, there has been a fair business doing during the month, and stocks are pretty low. Soda crystals locally, £2. per ton; Bleach, £7. 5s. per ton; sulphur scarce at £3. 17s. 6d.

Bleaching Powder, softs, £7. 5s. per ton, nett; hard, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 5s. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt firm at 9s. 6d. per ton, f.o.b. Tees.

COALS.—The demand is easier, though as far as prices go there is very little, if any, alteration. Best Northumbrian steam, 10s. 6d. to 10s. 9d. per ton; seconds, 9s. 6d. to 9s. 9d. per ton; small steam, 4s. 6d. per ton; gas coals, firm, 7s. 3d. to 7s. 9d. per ton; coke, steady, 14s. to 15s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The demand all round remains very quiet, the advance gained last week in the prices of cottonseed and linseed oils being lost again during this week. The buyers of oil are much like the buyers of seed—they are content with looking on. The principal imports up to date in 1894 and 1893 have been: Linseed, 482,080 quarters, against 344,417 quarters; rapeseed, 108,271 quarters, against 53,078 quarters; cottonseed, 136,161 tons, against 129,266 tons; olive oil, 19,318 casks, against 8,436 casks; rape oil, 6,469 casks, against 5,929 casks; oilcakes, 14,742 tons, against 16,204 tons; tallow, 24,377 cwt., against 30,242 cwt.; bones, 7,156 tons, against 3,596 tons; turpentine, 15,299 barrels, against 14,557 barrels; tar, 15,645 barrels, against 11,669 barrels. Linseed oil quiet at 20s. 3d. to 20s. 4½d. naked spot; November-December or January-April offer at 19s. 9d. per cwt.; casks 17s. 6d., and ordinary barrels 25s. per ton extra. Boiled and refined ditto from £1. to £2. per ton extra. Export for the week, 1,840 cwt. Refined cotton oil easier, sellers at 17s. 4½d. naked spot, and 17s. 3d. to 17s. 1½d. for November-April. New crude on the spot offers at 15s. 9d. naked. Export of refined for the week, 2,220 cwt. Rape oil unchanged. "Vegaline," the new vegetable fat, perfectly white and neutral, £30. per ton. Turpentine has advanced 10s. per ton upon last week's prices, being now quoted 22s. 3d. for American spirits. Olive oil also is inclined to be more money. Castor oil unchanged. Cod oil quiet, £17. to £19. per ton. Sod oil quiet.

CAKES.—Linseed cakes firm: 95%, pure, £6. 15s. to £7. per ton; Russians, £6. 5s. to £6. 15s.; oilcakes, £5. 15s. Cotton cakes firm for spot and near deliveries, present low prices being unremunerative. Best makes, spot £4., and December-April £3. 17s. 6d. Rape cakes: East India £3. 17s. 6d., Black Sea £2. 17s. 6d., feeding cakes £4. 1s. per ton.

PAINTS are only a quiet market, with a quiet and seasonable demand. White and red leads unchanged, also oxide of zinc. Venetian red, dry, £3. 15s.; oxide of iron, dry, from £7. to £18; yellow ochre, dry, £3. 15s.; mineral black, £3. 15s.; black varnish for ironwork, £5. 10s. per ton. Putty, £5. 10s. per ton. Oak varnish from 5s. 6d. per gallon. Paint remover, 25s. per cwt.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron quiet: Scotch warrants closed at 42s. 7d., Middlesbrough 35s. 7½d. cash, and hematite 43s. 8d. Copper, firm: Chili bars, G.O.B.'s and G.M.B.'s closed at £40. 15s. to £41. cash, and £41. 1s. 3d. to £41. 6s. 3d. three months. Tin firmer. Straits closed at £68. to £68. 5s. cash, and £68. 5s. to £68. 15s. three months. Australian, £68. 10s. English ingots, £70. 10s. Lead steady: Spanish, £9. 16s. 3d. to £9. 17s. 6d. English, £9. 17s. 6d. to £10. Silesian spelter, ordinary, £15. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 10s. Copper shares steady: Cape, 1½ to 1½; Copiapo, 1½ to 1½; Libiola, 3¼ to 3½; Mason and Barry, 1¼ to 1½; Rio Tinto, 14½ to 15½; Tharsis, 4¼ to 5.

GLASGOW, WEDNESDAY.—Market firm, with small business. Scotch done at 42s. 7d. cash, also at 42s. 9½d. one month; closing with buyers at 42s. 7d. cash, sellers ask 42s. 7½d. Cleveland closes with buyers at 35s. 7½d. cash, sellers ask 35s. 8½d. Cumberland hematite done at 43s. 7½d. cash; closing with buyers at 43s. 8½d. cash, sellers ask 43s. 9d. Middlesbrough hematite closes with buyers at 42s. 7d. cash, sellers ask 42s. 9d.

WOLVERHAMPTON, WEDNESDAY.—A quieter market. Orders for finished iron less numerous, and prices favoured buyers on the basis of £6. 10s. sheets doubles, £7. to £7. 5s. trebles, and £9 15s. upwards galvanised corrugated sheets. The start was announced of the Earl of Dudley Company's new steelworks, which have £40,000.; also of the Congreves blast furnaces, under the new proprietary. Deliveries of pigs are accumulating somewhat, and prices easier. Northampton, 41s., Derbyshires, 42s., Lincolns, 43s., Bessemer billets, £4. 2s. 6d. to £4. 5s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady. There has been a fair amount of business doing in Bonny, Accra, and Benin. Lagos is quoted £23. 10s. to £24. per ton on spot. Olive is in good request, at prices ranging from £30. to £39. per tun, according to quality. Linseed is quiet, with very little business doing; price, however, is still 21s. 9d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed is steadier at the reduction, Liverpool refined in export barrels being quoted 19s. 6d. to 20s. 3d. per cwt. Castor oil is steady. Good seconds Calcutta is firm at 2½d. First pressure French 2½d. store and ex-

quay, 2½d. per lb. buyers. Tallow is scarce, with but a small demand. Resin is in fairly good request at full prices. Common, 3s. 7½d. to 3s. 9d. per cwt. Other grades firm. Spirits of turpentine are again easier at 21s. 3d. per cwt. Petroleum quiet. American, 4¼d. to 5½d., and Russian refined, 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22 10s. to £25.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, 17th inst., state:—

Chili Charters for the past fortnight are cabled as 1,100 tons, making the total since 31st December last 16,950 tons, against 16,550 tons same time last year. Exchange 13d. Since ours of the 2nd inst., we have had a fairly active, though irregular, market for G.M.B.'s, at prices ruling from £41. 12s. 6d. cash and £42. three months, down to £40. 17s. 6d. and £41. 5s. respectively, but improved this afternoon to £41. cash and £41. 6s. 3d. three months' buyers. The Rio Tinto Mining Company have declared a dividend of 4s. per share for the first six months of this year, against 14s. for the whole of 1893, the average price of copper being £3. 5s. lower for the first six months than for the previous twelve months. The shares are quoted to-day at £14¼. to £14½. The total stocks in Liverpool, Swansea, London, and Havre are 48,682 tons, against 48,284 tons on the 2nd inst., showing an increase of 398 tons for the fortnight. The stocks include about 1,500 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,962 tons, against 52,063 tons on the 2nd inst., showing an increase of 899 tons. Refined and manufactured sorts are steady, quotations being:—Tough cake, £44. to £44. 5s.; best select, £44. 5s. to £44. 10s.; Indian sheets, £48.; strong sheets, £52. to £52. 10s.; and yellow metal sheets, 4¾d. per lb.

The sales of furnace material comprise at Liverpool: 50 tons Mexican ore, at 8s. per unit; 95 tons argentiferous Mexican matte, 44 tons argentiferous Chili regulus, 54 tons auriferous and argentiferous Mexican bars, and 40 tons Seville precipitate, all on private terms. At Swansea: 277 tons Libiola ore, at equal to 6s. 9¼d., and 256 tons at 6s. 9½d. per unit.

New Companies.

East Kent Brick Works, Ltd.—CAPITAL £20,000., in shares of £5. each. This company has been formed to acquire the clay, chalk, and sand mines of G. Lydell, at Faversham. The subscribers to the memorandum of association are:—T. Besan, 27, Abbeyfield-road, S.E., dentist; W. White, 53, Station-street, E., clerk; W. Osborne, Uxbridge, traveller; A. Boyse, 5, New North-road, N., traveller; R. Cornelius, 20, Millais-street, S.E., clerk; T. Hancock, 61, Holderton-road, S.E., stationer; J. Ord, 22, Canterbury-road, S.E., engineer.

Reade Bros. & Company, Ltd.—CAPITAL £25,000., in shares of £10. each. This company has been formed to take over as a going concern the business of chemical manufacturers and druggists now carried on at Wolverhampton, Staffordshire. The subscribers to the memorandum of association are:—P. J. Chubb, Kerrera, Wolverhampton, manufacturing chemist; T. Reade, Oakleigh, Wolverhampton, manufacturing chemist; E. G. Reade, Oakleigh, Wolverhampton, married woman; J. E. Rinderhill, 24, Darlington street, Wolverhampton, solicitor; A. E. Palmer, Goldthorn Hill, Wolverhampton, laboratory manager; C. E. Jones, Merridale-road, Wolverhampton, cashier; W. Tozer, 65, Finsbury Pavement, E.C., merchant.

W. L. Jackson & Sons, Ltd.—CAPITAL £130,000., in shares of £10. each. This company has been formed to take over as a going concern the business of tanners and curriers now carried on at Leeds by the Right Hon. W. L. Jackson, M.P., and to trade as tanners, curriers, and dealers in skins, hides, etc. The subscribers to the memorandum of association are:—W. L. Jackson, Allerton Hall, Leeds, tanner; G. H. Jackson, Allerton Hall, Leeds, tanner; F. Stanley Jackson, Allerton Hall, Leeds, tanner; J. H. Tinsley, Grapenhall, Warrington, tanner; G. M. Harper, Boston Spa, Yorks, captain; Annie Jackson, Allerton Hall, Leeds; E. Maud Jackson, Allerton Hall, Leeds.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improved Varnish for Mixing with Bronze Powder Colours. T. Coppock. 19,535. Oct. 15.
Non-Conducting Covering for Steam Pipes. J. A. Fisher. 19,536. Oct. 16.
Artificial Stone. W. Owen. 19,647. October 16.
Preparation of Ammonium Chromates. V. I. Ffeny. 19,684. October 16.
Manufacture of Solid Petroleum Fuels. J. Lyle. 19,692. October 16.
Filtration of Water, Sewage, etc. W. J. Lomax and C. J. Lomax. 19,761. October 17.
Manufacturing or Recovering Cyanogen Compounds. J. E. Riley. 19,768. October 17.
Manufacture of Sulphuric Acid. J. E. Riley. 19,769. October 17.
Manufacture of Ammonia. J. E. Riley. 19,770. October 17.
Mercurial Vacuum Pumps. E. G. Clerc. 19,793. October 17.

Ore Pulverisers. P. B. Bradley. 19,824. October 18.
Valves for Regulating Chemical and other Liquids. C. H. C. Rudd. 19,843. October 18.
Camphor Substitutes. J. E. T. Woods and W. J. Birnie. 19,869. October 18.
Concentrating and Storing Alkalies and other Chemicals and Apparatus therefor. J. Armstrong. 19,876. October 18.
Improved Saponaceous Compound. H. Whitbread. 19,068. October 19.
Manufacture of Crucibles and Refractory Bricks. J. W. S. Holt and S. Hargreaves. 20,050. October 20.
Manufacturing Cellulose from the Waste Produced in the Extraction of Tanning and Dyeing Materials. A. Levinstein. 20,086. October 20.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

H. TATE, W. H. TATE, E. TATE, and H. TATE, jun., London and Liverpool, under the style of Henry Tate and Sons, sugar refiners, as far as regards H. Tate.
D. FORBES and C. HODELL, waterproof enamel manufacturers, Bristol, under the style of Forbes and Hodell.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

NELSON, THOMAS, Ulverston, artificial manure agent.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.		France, 30		Lucas & Spencer's		Austria, 400		A. J. Humphrey		U. States, 1,300		1,300		Beck & Pollitzer	
Week ending October 20th.				Wf. Ltd.		U. States, 100		Skilbeck Bros.						Pillow,	
Acetic Acid—				Snowdon, Sons, & Co. <td colspan="2">Germany, 10<td colspan="2">T. H. Lee<td colspan="2"></td><td colspan="2"></td><td colspan="2">Jones & Co.</td></td></td>		Germany, 10 <td colspan="2">T. H. Lee<td colspan="2"></td><td colspan="2"></td><td colspan="2">Jones & Co.</td></td>		T. H. Lee <td colspan="2"></td> <td colspan="2"></td> <td colspan="2">Jones & Co.</td>						Jones & Co.	
Holland, 9 pkgs.	Beresford & Co.	Italy, £12		Langton, Edden, & Co.		Canada, 80		A. J. Humphrey						T. Duche & Sons	
Acetanilide—		E. Indies, 34 cks.		Ross & Deering		Gambler		E. Indies, 168 pkgs.		R. & J. Henderson				L. Sutro & Co.	
Holland, 5 pkgs.	F. Boehm			Cayzer, Irvine, & Co.						Ross & Deering				Prop.	
Alum—		Belgium, 8 c.		Petri Brs.						E. Boustead & Co.				Chmblin's Wf.	
Belgium, 24 pkgs.	H. Wallace & Co.	France, 105		Spies Brs. & Co.						Beresford & Co.				Boake,	
Germany, 13	Ohlenschlager Brs.	Chemicals (otherwise undescribed)		T. H. Lee						Hoare, Wilson, & Co.				Roberts & Co.	
Holland, 3	W. Burton & Sons	Germany, 103 pkgs.		L. & I. D. Jt. Co.						Baxter & Hoare				Ohlenschlager Brs.	
Belgium, 25	Greiff & Co.			Pickford & Co.										Deering & Robottom	
Ammonium Chloride—				Rosenberg,										Un. Lige Co., Ltd.	
Holland, 20 pkgs.	H. Lorenz			Loewe, & Co.											
Aniline—				Phillipps & Graves											
France, 1 pkge.	H. Johnson & Sons			E. Merck											
Antimony Ore—				L. C. & D. Rly. Co.											
Portugal, 50 t.	Coml. Lightgr. Co.			T. H. Lee											
Arsenic—				T. Palmer											
Germany, 10 pkgs.	Burgoyne & Co.			Leach & Co.											
Asbestos—				Copper Sulphate—											
Canada, £1,950				U. States, 94 pkgs.		Williams, Torrey, & Co., Ltd.									
Italy, 420	British Asbestos Co.														
Holland, 30	G. Rahn & Co.														
Barytes—				Cream of Tartar—											
Holland, 12 cks.	T. Robertson			Holland, 42 pkgs.		Kirkpatrick & Co.									
Caoutchouc—				France, 5		W. C. Bacon & Co.									
E. Indies, 12 c.	Butler's Wf. Ltd.			" 3		E. W. Carling & Co.									
" 5	Prop. Bull Wf.			" 30		H. W. Peabody & Co.									
" 24	Wrightson & Son			" 5		F. C. Devon & Co.									
" 182	R. & J. Henderson			" 5		M. Ashby, Ltd.									
" 7	Pickford & Co.			" 5		W. V. Robinson & Co.									
" 848	L. & I. D. Jt. Co.			Spain, 17		B. & F. Wf. Co.									
Ibo, 58	Lewis & Peat			" 15		W. C. Bacon & Co.									
" 60	S. Figgis & Co.			Dextrine—											
" 200	Forbes, Forbes, & Co.			Germany, 100 pkgs.		J. Barber & Co.									
Zanzibar, 70	Arbuthnot, Ewart, & Co.			Dyestuffs—											
" 270	L. & I. D. Jt. Co.			Norway, 1 pkge.		Johnsen & Jorgensen									
" 22	T. H. Lee			Argols											
Germany, 17	Anderson, Weber, & Smith			Italy, 500 pkgs.		Thames S. T. & L. Co., Ltd.									
" 71	Wallace Brs.			" 709		B. Jacob & Sons									
" 23	Prop. Bull Wf.			Cutch											
P. E. Africa, 62	Lewis & Peat			U. States, 1 pkge.		Rosenberg, Loewe, & Co.									
Ecuador, 21	H. River & Co.			Rangoon, 700		A. Howden & Co.									
" 85	Price, Hickman, & Co.			" 1,100		Leach & Co.									
C. America, 28	T. H. Lee			" 300		Arracan Co., Ltd.									
France, 11	Carter, Paterson, & Co.			" 500		Hoare, Wilson, & Co.									
" 30	Prop. Bull Wf.			Germany, 165		Brown & Elmslie									
Savanna, 7	J. Owen			Rangoon, 75		Huttenbach & Co.									
Carbonic Acid Gas—				" 250		McDougall & Bonthron									
Holland, 4 pkgs.				Extracts											
Castor Oil—				France, 8 pkgs.		T. H. Lee									
Italy, 25 cs.	Barron, Harveys, & Co.			" 50		Union L. Co.									
" 10	Hodgkinson, Preston, & Co.			" 9		B. & F. Wf. Co.									
France, 80 cks.	J. T. Morton			" 130		Prop. Chmblin's Wf.									
" 60 brls.	Beresford & Co.			Belgium, 200		T. H. Lee									
				Denmark, 30		T. T. Creed									
				" 21		R. J. Fullwood & Bland									

Potassium Carbonate—
France, 40 c. F. J. Putz & Co.
Potassium Chlorate—
Melbourne, 14 pkgs. T. Hamilton
Potassium Chloride—
France, 10 pkgs. B. & N. Wf. Co.
Potassium Cyanide—
Germany, 10 pkgs. L. & I. D. Jt. Co.
Potassium Hydrate—
France, 49 c. Spies Bros. & Co.
Potassium Oxalate—
Germany, 10 pkgs. F. Boehm
Potassium Oxymuriate—
Belgium, 10 pkgs. Arnati & Harrison
" 10 G. Boor & Co.
Potassium Permanganate—
Holland, 10 pkgs. G. Rahn & Co.
Potassium Sulphate—
France, 50 pkgs. Petri Bros.
Pumice Stone—
Italy, 15 c. M. D. Co.
" 9 B. Gallaway
" 19 J. Kitchin, Ld.
Pyrites—
Spain, 300 t. S. C. Hills
Pyrogallio Acid—
Holland, 10 pkgs. E. Merck
Quicksilver—
France, 150 btl. L. & I. D. Jt. Co.
" 150 J. Burnett & Sons
Rosin—
France, 13 brls. C. W. Schmidt
" 15 Lucas & Spencer's
" Wf., Ld.
Saltpetre—
Germany, 78 cks. P. Hecker & Co.
" 4 Petri Bros.
" E. Indies, 1,268 Lucas & Spencer's
" Wf., Ld.
Sodium Nitrate—
Chili, 72 pkgs. M. D. Co.
Starch—
Germany, 330 pkgs. Horne & Co.
" 401 Seward Bros., Ld.
" 949 Little & Johnston
" 389 Taylor Bros.
" 24 Philipps & Graves
" 110 Leach & Co.
" 100 F. Claydon & Co.
" 160 Sawyer, Sons & Co.
" 120 T. H. Lee
" 40 Barrett, Tagant,
" & Co.
Stearine—
France, 75 bgs. Meadow, Sons,
" & Co.
" 75 J. Goddard & Co.
" 50 H. Hill & Sons
" 64 " "
" 60 " "
" 20 Ross & Deering
Sulphur—
Italy, 5 t. M. D. Co.
" 200 B. Jacob & Sons
" 12 J. Kitchin, Ld.
" 10 C. Tennant, & Co.
" 10 C. J. Capes & Co.
Tartaric Acid—
Italy, 24 pkgs. B. & F. Wf. Co.
" 4 F. C. Devon & Co.
Turpentine—
Rangoon, 15 pkgs. H. Hill & Sons
" N. Russia, 51 brls. F. & S. Chiesman
" & Co.
Ultramarine—
Germany, 10 cs. Steinhoff, Sons, & Co.
" 5 Henu, Peron & Co.
" 6 cks. Philipps & Graves
" 12 brls. Leach & Co.
Varnish—
U. States, 4 pkgs. L. P. D. Co.
" 5 Anglo-American
" Oil Co.
Verdigris—
France, 13 pkgs. B. & F. Wf. Co.
Vermillion—
Germany, 1 pkge. Philipps & Graves
White Lead—
Germany, 20 cks. A. Zumbek & Co.
" 72 S. H. Willoughby
" 23 Petri Bros.
" 16 M. Ashby, Ld.
" 42 Randall Bros.
" 10 " "
" 20 J. Watts & Sons
Wood Pulp—
Holland, 162 pkgs. C. S. Lovell
" 540 Philipps & Graves
" 68 H. J. Lenne & Co.

Holland, 1,303 E. J. & W. Goldsmith
Norway, 10,380
" 800 Daily Telegraph Co.
" 246 W. G. Taylor & Co.
" 325 Ekman Pulp Co.
Sweden, 250 Henderson, Craig,
" & Co.
Germany, 47 W. Friedlander
" 70 Thames S. T. & L.
" Co., Ld.
Zinc Oxide—
U. States, 100 brls. M. Ashby, Ld.
" 12 Forster & Gregory
Holland, 70 pkgs. Prop. Dowgate Dk
Zinc Sulphate—
Germany, 12 pkgs. Stobbs, Wilson,
" & Co.

LIVERPOOL.

Week ending October 18th.

Acetic Acid—
Rotterdam, 27 blns.
Bone Ash—
Campana, 123 bgs.
Boracic Acid—
Leghorn, 12 cks.
Boracite—
Panderma, 550 t. Roberts & Evans
Borax—
Hamburg, 110 cks.
Caoutchouc—
Valparaiso, 22 bls. J. H. Schroder
" & Co.
" 13 W. Brandis, Son,
" & Co.
" 38 Kleinwort, Sons,
" & Co.
" 20 Rosing Bros.
" & Co.
Caustic Soda—
New York, 200 dms. J. P. Brunner
" & Co.
Chemicals (otherwise undescribed)
Rotterdam, 3 cs.
Colours—
Hamburg, 22 cs.
Cream of Tartar—
Tarragona, 5 cks. Sachse & Klemm
Dried Blood—
Campana, 52 bgs.
Dyestuffs—
Alizarine
Rotterdam, 5 bgs.
Annatto
Bordeaux, 20 cks.
Argols
Oporto, 32 cks. German Bank of
" London
Cochineal
Las Palmas, 6 bgs.
Gd. Canary, 23 Canary Islands
" Trading Co.
Cutch
Hamburg, 100 cs.
Extracts
Boston, 50 brls. Mucklow & Co.
" 50 Houston &
" Laurisch
" 30 R. Schlosser &
" Sons
" 10 " "
" 50 cks.
Bordeaux,
Fustic
Tampico, 5,008 ps. D. Midgley &
" Sons
" 1,950 W. H. Thompson
" & Co.
Carthagena, 50 t. W. I. & P. S. S. Co.
Corfu, 120 bdl. Barff & Co.
Logwood
New York, 2,390 qntls. H. Kendall &
" Sons
Campeche, 565 t.
Orchella
St. Vincent, 10 bgs. G. Warren
" & Co.
Shumac
Barcelona, 100 bgs.
Trieste, 189 J. Fletcher, jun.,
" & Co.
Valonia
Smyrna, 1,928 bgs. 3,710 knls.
Farina—
Trieste, 100 bls. N. W. Jackson
" Venice, 60 bgs.
" Stettin, 50
Fluorspar—
Rotterdam, 11 bgs.
Glucose—
New York, 50 brls.
Hamburg, 13 cks.

Iodine—
Valparaiso, 54 brls. A. Gibbs & Sons
Manganese Ore—
Vizagapatam, 798 t. Darwen & Mostyn
" Iron Co.
Mineral—
Vera Cruz, 724 bgs. Bessler,
" Waechter & Co.
Mineral White—
Genoa, 20 bgs.
Trieste, 50 W. Terrel & Sons
" 50 J. Griffin
" 100 F. Parisi
Paraffin Wax—
Newport News, 206 brls. H. Hill & Son
Phosphates—
Ghent, 1,000 bgs.
Potash—
Dunkirk, 1 ck. 31 dms.
Potassium Bichromate—
Hamburg, 26 cks.
Rosin—
Boston, 1,158 brls.
New York, 936
Salt—
Hamburg, 40 cks.
Soapstone—
Genoa, 566 bgs. W. Harrison
" & Co.
" 200
Sodium Silicate—
Rotterdam, 1 ck.
Starch—
Boston, 100 brls. 100 bxs.
" J. Howard & Co.
Ghent, 44 cs. J. T. Fletcher
" & Co.
Rotterdam, 280
Hamburg, 304
Stearine—
New York, 20 hds.
Rotterdam, 25 bls.
Tallow—
Boston, 500 tcs.
Tartar—
Bordeaux, 12 cks.
Tartaric Acid—
Hamburg, 2 cks.
Ultramarine—
Hamburg, 4 cks. 13 cs.
" 1
Waste Salt—
Hamburg, 105 bgs.
Zinc Oxide—
New York, 80 brls.
Rotterdam, 25 cks.

MANCHESTER.

Week ending October 20th.

Alumina Sulphate—
Rotterdam, 65 cks.
" 157 Simpson,
" Howden, & Co.
Carbonic Acid—
Rotterdam, 20 tubes.
Castor Oil—
Antwerp, 28 brls.
Chrome Alum—
Rotterdam, 28 cks. Simpson,
" Howden, & Co.
Chromium Chloride—
Rotterdam, 5 brls. Simpson,
" Howden, & Co.
Colours—
Hamburg, 4 cks.
Rotterdam, 1 16 cs.
" 1 bx. 68 16 21 brls.
" Simpson, Howden, & Co.
" 10 cks. 1 cs.
Antwerp, " "
Cream of Tartar—
Rotterdam, 2 cks. Simpson,
" Howden, & Co.
Dextrine—
Stettin, 70 bgs.
Dried Blood—
Treport, 10 cs. Arnati & Harrison
Dyestuffs—
Annatto
Bordeaux, 10 cks.
Extracts
Treport, 12 cks. Arnati &
" Harrison
Rotterdam, 5 Simpson,
" Howden, & Co.
Antwerp, 5

Farina—
Stettin, 200 bgs.
French Chalk—
Treport, 7 cs. Arnati & Harrison
Glucose—
Stettin, 25 brls. 1,000 bgs.
Ozokerit—
Stettin, 45 blks.
Paint—
Rotterdam, 20 cs.
Sodium Acetate—
Treport, 27 cs. Arnati & Harrison
Sodium Oxide—
Hamburg, 2 cs.
Sodium Nitrate—
Rotterdam, 12 cks. Simpson,
" Howden, & Co.
Starch—
Hamburg, 1,100 cs.
Rotterdam, 92
Antwerp, 20
Stearine—
Antwerp, 6 bgs.
Tartaric Acid—
Rotterdam, 12 cks. Simpson,
" Howden, & Co.
Waste Salt—
Hamburg, qty.
Wood Pulp—
Hamburg, 606 bls.
Kotka, 6,855
Christiania, 1,753
Zinc Oxide—
Rotterdam, 75 brls. Simpson,
" Howden, & Co.

HULL.

Week ending October 20th.

Acid—
Rotterdam, 35 blns. W. & C. L.
" Ringrose
Albumen—
Riga, 10 cks.
Alum—
Rotterdam, 38 cks. W. & C. L.
" Ringrose
Aniline Colours—
Hamburg, 34 cks. Wilson, Sons,
" & Co., Ltd.
Barytes—
Antwerp, 200 bgs. 21 cks. Bailey
" & Leatham
" 262 pks.
" 41 cks.
Chemicals (otherwise undescribed)
Ghent, 2 brls. Wilson,
" Sons, & Co., Ld.
Bremen, 2 cks. Veltmann
" & Co.
Bari, 22 cks. Wilson, Sons,
" & Co., Ld.
Antwerp, 20 pks. " "
Dunkirk, 90 " "
Cod Oil—
Bergen, 372 brls. Wilson, Sons,
" & Co., Ltd.
Colours—
Danzig, 12 pks. Wilson, Sons,
" & Co., Ltd.
" 18
Antwerp, 2 cks. Bailey &
" Leatham
Rotterdam, 39 W. & C. L.
" Ringrose
" 9 cs. 11 12 15 kgs. 2 bxs.
" Hutchinson & Son
" 2 2 cks. Wilson, Sons,
" & Co., Ld.
" 13 Bailey & Leatham
" 15 Wilson, Sons,
" & Co., Ld.
Amsterdam, 4 W. & C. L.
" Ringrose
Bremen, 2 J. Pyefinch & Co.
Antwerp, 8 pks. Wilson,
" Sons, & Co., Ld.
Cream of Tartar—
Rotterdam, 2 cks. Hutchinson
" & Son
Cryolite—
Copenhagen, 6 cks. Wilson, Sons,
" & Co., Ld.
Dextrine—
Stettin, 200 bgs. Wilson, Sons,
" & Co., Ld.

Dyestuffs—			
Alizarine			
Rotterdam,	13 cks.	W. & C. L.	Ringrose
Extracts			
Hamburg,	60 cks.		
Madder			
Rotterdam,	2 cks.	Hutchinson	& Son
Sumac			
Limassol,	1,280 bgs.	Wilson, Sons,	& Co., Ltd.
Trieste,	46 bls.		
Palermo,	1,200 bgs.		
	950		
Farina—			
Ghent,	224 bxs.	Wilson, Sons,	& Co., Ltd.
Glucose—			
Stettin,	35 cks.	Wilson,	Sons, & Co., Ltd.
	200 bgs.		
New York,	1,790	350 brls.	580 pks.
Rotterdam,	50	Hutchinson & Son	
Infusorial Earth—			
Hamburg,	12 bgs.		
Lead Acetate—			
Stettin,	30 brls.	Wilson, Sons,	& Co., Ltd.
Nitre—			
Hamburg,	50 bgs.	Wilson, Sons,	& Co., Ltd.
Saltetre—			
Hamburg,	5 cks.	Lofthouse & Saltmer	
	10 bgs.	20 brls.	Wilson, Sons, & Co., Ltd.
Antwerp,	135		
Silica—			
Hamburg,	7 bgs.	Blundell,	Spence, & Co.
Soap—			
New York,	1 brl.	Wilson, Sons,	& Co., Ltd.
Starch—			
Bremen,	1,831 cs.	Veltmann & Co.	
Stearine—			
Antwerp,	78 bgs.	Wilson, Sons, & Co., Ltd.	
Sulphur—			
Catania,	2,550 pks.	Wilson, Sons,	& Co., Ltd.
	303	50 t.	
Tallow—			
Boston,	10 brls.	Wilson, Sons,	& Co., Ltd.
Tartaric Acid—			
Rotterdam,	6 cks.	Hutchinson	& Son
Turpentine—			
Liban,	104 brls.		
Varnish—			
New York,	20 brls.	Wilson, Sons, & Co., Ltd.	
Waste Salt—			
Hamburg,	98 bgs.	Wilson, Sons, & Co., Ltd.	

White Lead—	508		
Antwerp,	73 cks.	Bailey & Leatham	
Wood Pulp—			
Norrkoping,	160 bls.		
Helsingfors,	16	J. Good & Sons	
"	81	Farley & Co.	
"	100		
Zinc Oxide—			
Rotterdam,	45 cks.	W. & C. L.	Ringrose

GLASGOW.

Week ending October 25th.

Acetate of Lime—			
Montreal,	635 bgs.		
Aniline Colours—			
Rotterdam,	2 bxs. 2 brls.	J. Rankine & Son	
Arachide Oil—			
Rotterdam,	2 cks.		
Asbestos—			
Montreal,	240 bgs.	G. Gillespie & Co.	
Barytes—			
Rotterdam,	38 pkgs.		
Barytes Sulphate—			
Antwerp,	36 cs.		
Bone Meal—			
Calcutta,	2,240 bgs.		
Carbonic Acid—			
Rotterdam,	15 tubes.		
Castor Oil—			
Antwerp,	60 cks.		
Calcutta,	493 cs.		
Chemicals (otherwise undescribed)			
Hamburg,	1 cs.		
Colours—			
Rotterdam,	4 cks. 1 cs.	J. Rankine & Son	
Antwerp,	3		
Rotterdam,	14 pkgs.		
Hamburg,	12 cs.		
Dyestuffs—			
Alizarine			
Rotterdam,	36 brls.	J. Rankine & Son	
	43 pkgs.		
Argols			
Bordeaux,	62 bgs.		
Cutch			
Rangoon,	700 bxs.		
Extracts			
Rouen,	8 cks.		
Nantes,	200		
Antwerp,	1		
Fume,	111 cs.		
Indigo			
Rotterdam,	1 cs.		
Madder			
Rotterdam,	9 cks.	J. Rankine & Son	

Shumac			
Trieste,	53 bgs.	Gray, Gorman	
"	30	Young & Strand	
Palermo,	250	Wm Buntin & Co.	
"	500		
Farina—			
Antwerp,	2 bgs.		
Infusorial Earth—			
Hamburg,	27 bgs.		
Iron Oxide—			
Trieste,	40 brls.	Ferguson & Reid	
Magnesite—			
Hamburg,	22 cks.		
Oxalic Acid—			
Rotterdam,	12 cks.		
Phosphates—			
Ghent,	1,531 bgs.		
Potassium Carbonate—			
Hamburg,	19 cks.		
Soap—			
Fume,	111 cs.		
Sodium Acetate—			
Rouen,	15 cks.		
Starch—			
Antwerp,	430 cs.		
Rotterdam,	72	J. Rankine & Son	
Fume,	20 bgs.	W. Stirling	
"	180		
Rotterdam,	104 cs.		
Tartaric Acid—			
Rotterdam,	25 cks.		
Ultramarine—			
Rotterdam,	6 cks.		
White Lead—			
Antwerp,	3 cks.		
Rotterdam,	10	J. Rankine & Son	
Wood Pulp—			
Fume,	20 bls.		
Christiana,	2,405		
Zinc Ashes—			
Antwerp,	7 cks.		
Zinc Oxide—			
Antwerp,	40 cks.		

TYNE.

Week ending October 20th.

Alum—			
Hamburg,	22 cks.	Tyne S. S. Co.	
Barytes—			
Rotterdam,	4 cs.	Tyne S. S. Co.	
Carbonic Acid Gas—			
Rotterdam,	50 tubes	Tyne S. S. Co.	
Cod Oil—			
Trondhjem,	3 brls.		
Colours—			
Antwerp,	2 cs.	Tyne S. S. Co.	
Limestone—			
Antwerp,	2 crts.	Tyne S. S. Co.	
Phosphate—			
Antwerp,	350 t.	Langdale's	Chemical M. Co.

Pyrites—			
Huelva,	1,734 t.		
Soap—			
Rotterdam,	4 cs.	Tyne S. S. Co.	
Starch—			
Rotterdam,	140 cs.	Tyne S. S. Co.	
Ghent,	50		
Tartaric Acid—			
Rotterdam,	4 cks.	Tyne S. S. Co.	
White Lead—			
Antwerp,	28 brls.	Tyne S. S. Co.	
Wood Pulp—			
Gothenburg,	80 bls.		

GOOLE.

Week ending October 17th.

Alkali—			
Calais,	4 cks.		
Caoutchouc—			
Boulogne,	3 cks.		
Dyestuffs—			
Alizarine			
Rotterdam,	164 pkgs.		
Extracts			
Ghent,	25 cks.		
Indigo			
Rotterdam,	3 cks.		
Logwood			
Laguna de Terminos,	400 t.		
Belize,	450		
Dyestuffs (otherwise undescribed)			
Rotterdam,	145 pkgs.		
Boulogne,	6 cs. 48 cks.		
Ghent,	3		
Farina—			
Hamburg,	100 bgs.		
Delfsbyl,	1,022		
Glucose—			
Dunkirk,	100 bgs.		
Potash—			
Rotterdam,	2 cks.		
Dunkirk,	20		
Calais,	29 dms.		
Waste Salt—			
Hamburg,	762 t. 160 cks. 200 bgs.		

GRIMSBY.

Week ending October 20th.

Caoutchouc—			
Antwerp,	2 cs.		
Hamburg,	4	12 bls.	
Chemicals (otherwise undescribed)			
Hamburg,	3 cks. 3 cs.		
Coal Tar Dyes—			
Hamburg,	34 cks.		
Dyestuffs (otherwise undescribed)			
Dieppe,	25 cks. 3 cs.		
Size—			
Hamburg,	20 bgs.		
Waste Salt—			
Hamburg,	203 bgs.		

EXPORTS OF CHEMICAL PRODUCTS
OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			
<i>Week ending October 24th.</i>			
Acids—			
Bombay,	7 c.	£9	
Mauritius,	14	15	
Malta,	66 cs.	17	
Calcutta,	2	11	
Thursday Island,	4	13	
Alum—			
Rabat,	2 t. 10 c.	£14	
Ammonia (Liquid)—			
Santos,	5 cs.	£7	
Huelva,	17 c.	18	
Ammonium Carbonate—			
Santos,	14 c.	£27	
Wellington,	5 cs.	13	
St. Petersburg,	50 brls.	170	
Boston,	20 cs.	30	
New York,	8 t.	240	
Ammonium Chloride—			
Cologne,	1 t.	£38	
Batoum,	11 c.	10	
Adelaide,	4 cks.	25	
Salonica,	9	17	

Alexandria,	15	28	
Odessa,	1	41	
Ammonium Nitrate—			
Sydney,	14 pkgs.	£78	
Ammonium Sulphate—			
Demerara,	9 t. 19 c.	£140	
Sourabaya,	50	630	
Marseilles,	10	125	
Torreveja,	25	350	
Arsenic—			
Sydney,	20 dms.	£16	
Melbourne,	7 t. 10 c.	118	
Boracic Acid—			
Yokohama,	1 t. 10 c.	£48	
Borax—			
E. London,	3 t.	£65	
Hamburg,	12 cks.	103	
Auckland,	1	11	
Sydney,	35 kgs.	47	
Melbourne,	5	240	
Calcium Chloride—			
Cleveland Bay,	29 dms.	£30	
Carbolic Acid—			
Rio de Janeiro,	1 t. 4 c.	£148	

Fremantle,	1	6	43
Dusseldorf,	40 cks.	280	
Hiogo,	1	50	
Napier,	90 dms.	80	
Santos,	1 ck.	8	
Rio de Janeiro,	10	75	
Marseilles,	43 cks.	119	
Caustic Potash—			
Napier,	1 t. 10 c.	£56	
Caustic Soda—			
E. London,	10 c.	£21	
Auckland,	10	8	
Rio de Janeiro,	10	9	
Napier,	2 t. 2	20	
Natal,	9	11	
Algoa Bay,	3	14	92
Chemicals (otherwise undescribed)			
Berbec,	5 t.	£150	
Algoa Bay,	50 cs.	25	
Galata,	16 c.	64	
Auckland,	101 cs. 4 cks.	330	
Melbourne,	15 c.	60	
Fremantle,	13	24	
E. London,	40 kgs. 4 cs.	62	

Malta,	4	13	
Montreal,	5 c.	15	
Brisbane,	part pkgs.	30	
Chloride of Lime—			
Rio de Janeiro,	6 c.	£20	
Algoa Bay,	20 dms.	13	
Citric Acid—			
Genoa,	3 t. 4 c.	£442	
Adelaide,	3	20	
Sydney,	5	32	
Cologne,	13	80	
Pt Elizabeth,	2 pkgs.	2	30
Montreal,	10	65	
Odessa,	6	36	
Antwerp,	10	76	
Algoa Bay,	1	8	
Bombay,	1	8	
Cape Town,	1	8	
Hamburg,	2 cks. 7	100	
Rotterdam,	3	180	
St. Petersburg,	20	630	
Rangoon,	2 cs.	15	
Batoum,	5 kgs.	33	
Amsterdam,	6	39	

Coal Products—

Aniline Dyes		
Melbourne, 1 cs.	£13	
Boulogne, 1 ck.	8	
Auckland, 1	13	
Aniline Oil		
New York, 19 dms.	£550	
Anthracene		
Rotterdam, 60 cks.	£300	
Rotterdam, 25 pns.	170	
Treport, 42 cks.	£178	
Coal Tar Dyes		
Yokohama, 10 cks.	£100	
Boston, 11 cks.	178	
Creosote		
Hochfeld, 1,720 bgs.	£184	
Naphtha		
Auckland, 20 dms.	£16	
Wellington, 20	16	
Naphthaline		
Rotterdam, 3 cks.	£8	
Pitch		
Helsingfors, 25 t.	£45	
Christiania, 10 brls.	10	
Philadelphia, 2,000 cks.	2,085	
Konigsberg, 40 t.	80	
Antwerp, 176	317	
Dunkirk, 1,475	2,559	
Marseilles, 650	1,175	
Boston, 1,000 bgs.	250	brls.
B. Ayres, 60 cks.	314	
Dunkirk, 706 t.	1,316	
Tar		
Natal, 355 dms.	10 cks.	30 pks.
Rio de Janeiro, 20 brls.	£43	
Colombo, 20 runs.	18	
Helsingfors, 100 brls.	11	
Konigsberg, 500	313	
Alexandria, 8	9	
Sydney, 50 dms.	13	
Malta, 10	10	
Pt Elizabeth, 45	5	
Boston, 200	110	
Tar Oil		
Gothenburg, 250 cks.	£180	
Copper Sulphate—		
Naples, 15 t.	£240	
Wellington, 1	15	
Paris, 20	300	
Odessa, 5	2 c.	78
Cream of Tartar—		
Townsville, 5 c.	£15	
Christchurch, 6	19	
Auckland, 3	11	
Sydney, 4 t.	273	
Melbourne, 1	64	
Adelaide, 1	106	
Libau, 5 cks.	93	
Brisbane, 10	33	
Disinfectants—		
Auckland, 25 dms.	£45	
Brisbane, 50	22	
Hydrochloric Acid—		
Huelva, 1 t.	£15	1 c.
Magnesia—		
Boston, 5 cs.	£18	
Manure—		
Malaga, 48 t.	£415	16 c.
Lisbon, 5	10	22
Demerara, 126	16	1,471
Rouen, 25	85	
Sagua la Grande, 12	6	80
Charente, 63	19	320
Jumaca, 14	138	
Torre Vieja, 554	15	4,780
Jersey, 145	434	
Gd. Canary, 8	7	80
Bordeaux, 86	12	512
Las Palmas, 30	128	
Memel, 350	800	
Nitric Acid—		
Rio de Janeiro, 2 c.	£172	
Huelva, 1 t.	13	36
Madras, 18 cs.	24	
Phosphorus—		
Melbourne, 10 cs.	£101	
Potash Salts—		
Auckland, 9 t.	£1,465	17 c.
Potassium Chlorate—		
New York, 10 t.	£550	16 c.
Philadelphia, 5	300	
Odessa, 1	69	
Venice, 10	26	
Baton, 20 kgs.	56	
B. Ayres, 20 cks.	50	
Potassium Cyanide—		
Melbourne, 3 c.	£20	
Algoa Bay, 2 t.	473	10
Maryborough, 11	57	
Salicic Acid—		
Brisbane, 1 cs.	£40	

Saltpetre—

Dunedin, 10 c.	£13	
E. London, 18	32	
Melbourne, 2 t.	46	
Auckland, 10	11	
Adelaide, 2	10	55
Sydney, 1	2	23
Rio de Janeiro, 7	13	178
Gibraltar, 12	10	268
Oporto, 1	17	39
Algoa Bay, 1	9	10
Salts of Soda & Salts of Lime—		
Toronto, 12 cks.	12 cs.	£258
Sheep Dip—		
Demerara, 100 dms.	£27	
Jamaica, 25	16	
Melbourne, 3 t.	1 c.	100 kgs.
B. Ayres, 367 pks.	1,000 cs.	3,375
Algoa Bay, 2 t.	7 c.	110
Falklands, 827 pks.	1,856	
Soda—		
Demerara, 25 cks.	£12	
Paris, 10 c.	8	
Singapore, 8 t.	3	35
Boston, 5	25	
Soda Crystals—		
M. Video, 3 t.	5 c.	£8
B. Ayres, 9	22	
Demerara, 1	13	5
Cape Town, 5	7	
Soda Salts—		
New York, 30 cks.	£190	
Sodium Bicarbonate—		
Demerara, 1 t.	5 c.	£9
E. London, 15	10	
Malta, 1	7	
Auckland, 2	11	27
Trinidad, 1	4	0
Algoa Bay, 3	9	36
Sodium Bisulphite—		
Lyttelton, 4 t.	£16	
Sodium Hyposulphite—		
Otago, 1 t.	£10	
Sodium Sulphate—		
Lyttelton, 10 t.	£93	
Ghent, 70	70	
Strontium Nitrate—		
Calcutta, 1 t.	£31	
Sulphur—		
Demerara, 2 t.	9 c.	£17
Algoa Bay, 6	14	61
E. London, 250 pks.	152	
B. Ayres, 2 t.	10 c.	32
Sulphuric Acid—		
Cape Town, 20 cbs.	£15	
Huelva, 12 c.	6	
Colombo, 20 drs.	30	
B. Ayres, 10	21	
Penang, 5 t.	8 c.	23
Tartaric Acid—		
Christchurch, 2 c.	£11	
Adelaide, 2 t.	13	258
Nelson, 3	16	
Sydney, 2	5	210
Bombay, 6 cs.	17	

LIVERPOOL.

Week ending October 20th.

Acetic Acid—		
Ceara, 1 t.	3 c.	3 q.
£30		
Alkali—		
E. London, 12 c.	£10	
Albumen—		
Boston, 5 brls.		
Alum—		
Santos, 2 t.	9 c.	£11
Tripoli, 1	11	7
Alexandria, 14	98	
Malta, 1	19	3 q.
Calcutta, 34	1	2 145
Alumina Sulphate—		
Calcutta, 60 t.	19 c.	3 q.
£172		
Aluminous Cake—		
Calcutta, 24 t.	16 c.	1 q.
£83		
Ammonia—		
M. Video, 5 c.	3 q.	£9
Campana, 1	3	23
Ammonium Carbonate—		
Halifax, 5 c.	£9	
Hamburg, 1 t.	16	63
Stettin, 10	1 q.	18
Gothenburg, 10	19	
Rotterdam, 2		
Ammonium Chlorate—		
Bordeaux, 42 t.	19 c.	1 q.
£390		
Ammonium Chloride—		
Alexandria, 3 t.	10 c.	£130
Kurrachee, 2	72	

M. Video, 2	12	8
Montreal, 1	11	39
Bombay, 8	4	290
Stockholm, 1	16	52
B. Ayres, 1	6	10
Calcutta, 1	1	37
Ancona, 4	3 q.	7
Syria, 4	2	9
Philadelphia, 40	17	2 1,062
Genoa, 3	8	2 100
Ammonium Sulphate—		
Valencia, 61 t.	6 c.	1 q.
£775		
Las Palmas, 2		25
Sydney, 11	12	—
Boston, 25	20	2 328
Bordeaux, 5	3	3 62
New York, 25	11	3 330
Asbestos—		
Para, 4 cs.		
Barium Chlorate—		
Antwerp, 3 c.	£23	
Barytes—		
Antwerp, 5 kgs.		
Bleaching Powder—		
Baltimore, 101 cks.		
Boston, 1,318		
B. Ayres, 21	125 cs.	
Calcutta, 6		
Carril, 2		
Corunna, 2		
Dunkirk, 18		
Fairwater, 45		
Malaga, 3	10 brls.	
Maranhm, 123		
Newport News, 111		
New York, 393	50 bxs.	15 pks.
Philadelphia, 50		
Riga, 40		
Rotterdam, 6		
San Francisco, 22	420 brls.	
Venice, 22		
Vera Cruz, 10	dms.	
Leghorn, 14		
Boracic Acid—		
Danzig, 2 t.	11 c.	2 q.
£78		
Borax—		
Toronto, 6 t.	5 c.	£64
Santander, 3	4	68
Sagua la Grande, 3	6	2 q.
Victoria, B.C., 1		21
Stettin, 3	16	75
Vera Cruz, 11		11
Cadiz, 1		20
Boston, 22 cks.		90
Ancona, 1	1	3 18
Rotterdam, 5		100
Hamburg, 31	14	607
Christiania, 5		5
New York, 31 cks.		162
Calcined Magnesia—		
Havana, 10 c.	£269	
Caoutchouc—		
Bordeaux, 1 trs.	1 cs.	
Rangoon, 18 bls.	1 cs.	
Carbolic Acid—		
New York, 1 t.	19 c.	£96
Philadelphia, 5	13	3 q.
Rotterdam, 11		525
Genoa, 11		26
Stettin, 10		99
Colon, 1 cs.		5
Hamburg, 3	14	140
Castor Oil—		
Bourgas, 2 cks.		
Caustic Potash—		
San Francisco, 5 t.	£108	
Mannheim, 2	2 c.	50
New York, 12	10	281
Caustic Soda—		
Algoa Bay, 60 dms.		
Antwerp, 27 brls.		
Baltimore, 153		
Barcelona, 315	50	
Barl, 18		
Bilbao, 30		
Bordeaux, 17		
Boston, 400		
Fiume, 70		
Fairwater, 85		
Genoa, 240		
Gothenburg, 5		
Hamburg, 15		
Havana, 25		
Havre, 96		
Hio, 150		
Las Palmas, 20		
Melbourne, 20	20 pks.	
Montreal, 305		
Naples, 33		
N. Orleans, 50		
New York, 603	100 bxs.	
Oporto, 60		
Pelotas, 140		

Padang, 40 cs.		
Penang, 90		
Philadelphia, 50		
Puerto Cabello, 8		
Rio de Janeiro, 30		
St. John's, Nfd., 30		
St. Stephen, 30		
Samarang, 36		
San Francisco, 765	brls.	
Santos, 50		
Savanna, 10		
Shanghai, 4		
Singapore, 113	20 kgs.	
Sydney, 50	50 cks.	
Syria, 50		
Tampico, 4		
Trinidad, 15		
Tunis, 30		
Trieste, 40		
Valencia, 11	bxs.	
Wellington, 140		
Yokohama, 96		
Amsterdam, 50		
Catania, 31		
Chicago, 100		
Leghorn, 75		
Manila, 100		
Marseilles, 3	11 pks.	
Melbourne, 3		
Chemicals (otherwise undies.)—		
Trieste, 3 t.	£111	
Mersyne, 15 c.	26	
Odessa, 15	2 q.	21
Rio de Janeiro, 12 cks.	83	
Philadelphia, 13 t.	9	430
San Francisco, 3	1	11
China Clay—		
Bombay, 1,244	cks.	
Boston, 600		
Montreal, 19 t.	10 c.	
Naples, 20		
N. Orleans, 15		
Pernambuco, 30		
Rosario, 54		
Citric Acid—		
Corunna, 5 c.	£33	
Coal Products—		
Aniline Dyes		
Montreal, 2 cs.		
Aniline Oil		
Fiume, 2 dms.		
Aniline Salts		
Boston, 89 cs.		
New York, 4	10 cks.	
Santos, 20		
Pitch		
Bilbao, 40 brls.		
Tar		
Alexandria, 22 cks.		
Montreal, 1		
Valparaiso, 10 brls.		
Cobalt Oxide—		
Gijon, 3 q.	£32	
Rotterdam, 2 c.	50	
Seville, 1 brl.	5	
Copperas—		
San Francisco, 15 t.	18 c.	£23
Iquique, 5	15	2 q.
Copper Sulphate—		
Galatz, 3 t.	4 c.	2 q.
£51		
Tampico, 30		446
Guayaquil, 10	3	8
Riga, 14	19	2 195
Bordeaux, 3	17	56
Rotterdam, 1	15	25
Nantes, 41	4	1 520
Ancona, 5		76
Disinfectants—		
Rio de Janeiro, 1 cs.	£12	
Fiume, 5 c.	25	
Guano—		
Malaga, 110 t.	£995	
Gypsum—		
Victoria B.C., 5 t.	6 c.	1 q.
£10		
Lead Acetate—		
Naples, 9 cks.		
Santos, 5		
Magnesia—		
Rio de Janeiro, 5 1/2 t.		
Magnesium Chlorate—		
New York, 7 c.	q.	£2
Magnesium Chloride—		
Bahia, 2 t.	13 c.	£7
Magnesium Sulphate—		
Catania, 3 t.	£123	
Rio de Janeiro, 2	10 c.	11
Manganese—		
New York, 331 t.	15 c.	
Philadelphia, 45		
Smyrna, 50		
Stockholm, 18 cks.		
Tampico, 1 cs.		

HULL.*Week ending October 20th.***Ammonium Sulphate—**

Dunkirk, 45 bgs.
Marseilles, 1,532
Rotterdam, 250

Aniline Oil—

Boston, 15 dms.
Bleaching Powder—

Boston, 139 cks.
Hango, 73
Libau, 40
Stettin, 31

Carbolic Acid—

Genoa, 10 cks.
Rotterdam, 33
Riga, 25

Caustic Soda—

Helsingfors, 2 cks.
Libau, 118 dms.
Riga, 1,308
Wyburg, 30
Wasa, 1

Chemicals (otherwise undescribed)

Antwerp, 28 cs.
Abo, 4 cks.
Christiania, 34 12 32 pkgs.

Cottonseed Oil—

1,190 lbs.
Copenhagen, 15 10
Gothenburg, 60 6
Hamburg, 2 15
Helsingfors, 4 1
Konigsberg, 5 15
Leghorn, 6 153
Marseilles, 1
Rotterdam, 50
Riga, 76 233
Stockholm, 3 121
St. Petersburg, 3
Wyburg, 3

Dyestuffs (otherwise undescribed)

Abo, 2 cs.
Christiania, 30 bgs.
Gothenburg, 10 cks.
Riga, 1
Rouen, 8
St. Petersburg, 4 57
Stettin, 102 c.

Gypsum—

New York, 60 cks.

Linseed Oil—

Bergen, 91 c.
Christiansund, 18
Christiania, 833
Drontheim, 88
Hamburg, 311
Helsingfors, 44
New York, 17
Rotterdam, 74
Stavanger, 129
Stockholm, 608
Stettin, 1,040
Uleaborg, 4

Mineral White—

Hamburg, 1 bg.
Harlingen, 200

Ochre—

Amsterdam, 20 cks.
Amsterdam, 36 cks.

Painters' Colours—

Antwerp, 17 2 cs.
Abo, 1
Bergen, 3
Ghent, 3
Genoa, 25
Gothenburg, 1
Hamburg, 21 2 52
Leghorn, 24
New York, 96 50
Naples, 23
Rotterdam, 4 3
Riga, 50
Stockholm, 1
St. Petersburg, 38
Stettin, 34
Wyburg, 100
Wasa, 4

Pitch—

Antwerp, 171 t.
Helsingfors, 19 cks.

Slag—

Harburg, 899 t

Soap—

Drontheim, 55 cs.
Hamburg, 1
Helsingfors, 1
Rotterdam, 41
Stockholm, 1

Tallow—

Abo, 2 cks.
Bremen, 2 kgs.
Gothenburg, 17
Hamburg, 1
Harlingen, 9
Rotterdam, 17
Stockholm, 5
Wasa, 50

Tar—

Amsterdam, 6 cks.
Copenhagen, 4
Christiania, 10
Gothenburg, 3
Helsingfors, 385
Stettin, 5
Wyburg, 10

Yarnish—

Antwerp, 1 cs. 2 cks.
Ghent, 3

GLASGOW.*Week ending October 25th.***Albumen—**

Rouen, 5½ c. £50

Ammonium Sulphate—

Demerara, 30 t. £401
Hamburg, 35 10 c. £461. 10s.
Spain, 30 16½ £424

Bleaching Powder—

N. Zealand, 3 t. 17 c. £33
Cape Colony, 2 10½ 25

Boracic Acid—

Rotterdam, 1 ck. £69

Borax—

N. Zealand, 1 t. 5 c. £27
Canada, 2 7½ 50

Carbolic Acid—

N. Zealand, £44

Caustic Soda—

N. Zealand, 9 t. 18 c. £85

Coal Products—

Naphtha
Bombay, £30
N. Zealand, 24
Rouen, 6 t. 13½ c. 135

Pitch—

Montreal, 52 t. 13 c. £110
Gothenburg, 67 19½ 170
Sables D'Olon'e, 503 19 705
Hamburg, 23 25
New York, 83 17½ 129

Tar—

Danzig, 294 brls. £123
Canada, 92
Rangoon, 26

Coal Products (otherwise undes.)—

Rotterdam, 17 dms.

God Oil—

N. Zealand, 2 t. 9 c. £52

Dried Blood—

Rouen, 6 t. 1½ c. £43

Dyestuffs—

Extracts
Montreal, 7 t. 18 c. £259
Fustic Extract
Montreal, 4 t. 4¾ c. £148. 14s.

Logwood—

N. Zealand, £25

Myrabolams—

New York, 10 t. £70

Turmeric—

New York, 2 t. 12 c. £28

Dyestuffs (otherwise undescribed)

Spain, 4 t. 8½ c. £86

Farina—

New York, 10 t. £190

Glucose—

Cape Colony, 1 t. 16½ c. £21

Lead Acetate—

Bombay, 5 t. 8½ c. £77

Linseed Oil—

Brazil, 1 t. 1¾ c. £28
Rangoon, 1 132 10s.
N. Zealand, 21 19½ £488

Magnesium Sulphate—

Bombay, 25 t. £104

Manure—

Spain, 50 t. 3¾ c. £450

Paint—

New York, 3 t. 6¾ c. £62

St. Croix, 56
Brazil, 1 12 48
Rangoon, 66
New York, 62

Painters' Colours—

Cape Colony, £47
Chili, 204
Bombay, 29
Rangoon, 70
N. Zealand, 235

Paraffin Wax—

Danzig, 22 t. 4 c. £455
Spain, 25 12 655
Cape Colony, 3 100

Potassium Bichromate—

Montreal, 5 t. 3 c. £205
Bombay, 3 2½ 132
Gothenburg, 18 3 704
Rotterdam, 1 ck. 20

Spain, 10 10 416
New York, 16 14 662
Rouen, 21 6¾ 1,110
Amsterdam, 12 cks. 198

Potassium Prussiate—

New York, 9 t. ¾ c. £268

Rosin—

Bombay, 55 t. 11 c. £175

Sheep Dip—

N. Zealand, £380

Slag—

Amsterdam, 203 t. £70
Rotterdam, 306 107

Soap—

New York, 2 t. 10 c. £55
Demerara, 2 4½ 45
St. Croix, 1 16½ 27
Chili, 1 10 28
Bombay, 2 18 42

Sodium Bichromate—

Montreal, 5 t. 1¾ c. £183
Spain, 5 3½ 169
New York, 7 16 255
Rouen, 5 ½ 104

Sodium Phosphate—

New York, 5 t. 17 c. £61

Sulphuric Acid—

Bombay, 269 t. 3 c. £1,500
Rangoon, 59 19 355

Superphosphates—

Spain, 17 t. 14¾ c. £55

Tartaric Acid—

Rotterdam, 1 ck. £24

White Lead—

Cape Colony, 3 t. 12 c. £65
Canada, 2 ½ 35
N. Zealand, 5 1 105

TYNE.*Week ending October 20th.***Alkali—**

Gothenburg, 12 t. 8 c.
Hamburg, 5 5
Christiania, 6 3
Rotterdam, 2 14
Copenhagen, 2 5

Alum—

Oporto, 11 t. 4 c.

Alumina—

Rouen, 5 t. 9 c.

Ammonia—

Aalborg, 20 t.

Ammonium Carbonate—

Seville, 4 c.

Ammonium Chlorate—

Seville, 3 c.

Antimony—

Hamburg, 2 t.

Arsenic—

Gothenburg, 14 c.

Barytes—

Hamburg, 100 t
Rouen, 16

Blanc Fixe—

Copenhagen, 4 t. 7 c.

Bleaching Powder—

Antwerp, 26 t. 14 c.
Hamburg, 5
Danzig, 49 5
Christiania, 4 1
Rotterdam, 38
Ghent, 14 18
Copenhagen, 8 5
Drontheim, 10 3
Venice, 12 14
Oporto, 21 10
Gothenburg, 29 6

Caustic Soda—

Gothenburg, 75 t. 2 c.

Antwerp, 4 19
Hamburg, 16 11
Danzig, 10 3
Christiania, 13 10
Aarhus, 1 4
Rouen, 2 6
Ghent, 10
Copenhagen, 3 15
Venice, 10 3
Seville, 40 6

Lamp Black—

Rotterdam, 1 t. 9 c.

Litharge—

Gothenburg, 17 c.
Hamburg, 6 t. 7
Rouen, 1 1
Copenhagen, 11
Seville, 1 2

Magnesia—

Antwerp, 1 t.
Hamburg, 3 4 c
Rouen, 7

Manure—

Valencia, 26 t.

Paint—

Stavanger, 10 c.

Pitch—

Granville, 53 t. 10 c.

Salammoniac—

Seville, 5 c.

Slag—

Rotterdam, 528 t.

Soda—

Antwerp, 3 c.
Hamburg, 32 t. 10
Christiania, 9 15
Aalborg, 5 12
Rotterdam, 6 18
Christiansund, 10
Venice, 5
Oporto, 2 1
Gothenburg, 8 18
4 17

Soda Ash—

Gothenburg, 174 t. 13 c.
Hamburg, 40 7
Danzig, 19 19
Wasa, 60 5
Bergen, 5
Venice, 40 10

Sodium Silicate—

Venice, 4 t. 19 c.

Sodium Sulphate—

Wasa, 110 t. 9 c.

Sulphur—

Gothenburg, 63 t.
Antwerp, 5
Rotterdam, 5

Superphosphate—

Valencia, 55 t. 1 c.

Turpentine—

Antwerp, 8 glns.

White Lead—

Stavanger, 1 t. 8 c.
Gothenburg, 2 12

GOOLE.*Week ending October 17th.***Benzol—**

Boulogne, 124 cks.

Chemicals (otherwise undescribed)

Bruges, 1 cs.
Ghent, 10 pkgs.
Hamburg, 19 cks.
Rotterdam, 25

Coal Products (otherwise undes.)—

Boulogne, 20 cks.

Dyestuffs (otherwise undescribed)

Hamburg, 10 cks.
Rotterdam, 45

Manure—

Dunkirk, 180 bgs.
Jersey, 150 t.
Rotterdam, 521
Rouen, 90

Pitch—

Antwerp, 230 t.

GRIMSBY.*Week ending October 20th.***Chemicals (otherwise undescribed)**

Dieppe, 1 ck.
Hamburg, 20 pkgs. 5 cs.
Rotterdam, 200

Coal Products (otherwise undes.)—

Dieppe, 137 cks.

Dyestuffs (otherwise undescribed)

Dieppe, 1 cs. 2 pkgs.

PRICES CURRENT.

WEDNESDAY, OCT. 31st, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.B. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/9
" Glacial	"			50/-
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1½
Nitrous	"	0	0	1½
Oxalic	nett	0	0	3½
Phosphoric, 1750°	"	0	0	11
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	"	0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)	"	5	0	0
Alumina Sulphate (pure)	"	5	0	0
Aluminoferrie	"	2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	4
" 880=28° B.	per lb.	0	0	3
" =24° B.	"	0	0	2½
" Carbonate	nett	0	0	3½
" Muriate	per ton	23	10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
" Nitrate	per ton	41	0	0
" Phosphate	per lb.	0	0	10½
" Sulphate (grey) London	per ton	12	10	0
" (grey) Hull	"	12	10	0
Aniline Oil (pure)	per lb.	0	0	5½
Aniline Salt	"	0	0	5½
Antimony	per ton	33	10	0
" (tartar emetic)	per lb.	0	0	9½
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	10	0
" Carbonate (native)	"	3	10	0
" Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35 %	nett	7	7	6
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	5	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90 % nominal	per gallon	0	1	2½
" 50/90	"	0	1	2
Carbolic Acid (crystallised 40°)	per lb.	0	0	5½
" (crude 60°)	per gallon	0	1	6½
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30 % @ 120° C.	"	0	0	5½
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	15	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2
Lucigen and " Wells Oils	"	0	0	2½
Copper	per ton	40	15	0
" Sulphate	"	14	15	0
" Oxide (copper scales)	"	39	5	0
Glycerine (crude)	"	15	0	0
" (distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	11	0	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white ")	"	25	0	0
" " brown ")	"	15	10	0
" Carbonat. (white lead) pure	"	16	0	0
" Nitrate	"	20	0	0

Lime, Acetate (brown)		£	s.	d.
" (grey)	per ton	7	0	0
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton	17	0	0
" Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	per ton	17	15	0
" Borate	per cwt.	2	15	0
" Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	1	10
Naphtha (Wood), Solvent	"	0	3	3
" " Miscible, 60° O.P.	"	0	3	8
Oils:—				
Cotton-seed	per on	20	5	0
Linseed	"	22	0	0
Petroleum, American	per gallon	0	0	5½
Stearine	per ton	25	10	0
Phosphorus (yellow)	per lb.	0	2	1
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	per lb.	0	0	4½
" Carbonate, 90% (ex ship)	per ton	16	15	0
" Chlorate	per lb.	0	0	5½
" Cyanide, 98%	"	0	2	3
" Hydrate (Caustic Potash) 80/85 %	per ton	21	15	0
" " (Caustic Potash) 75/80 %	"	20	0	0
" " (Caustic Potash) 70/75 %	"	19	10	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	2	6
" Prussiate Yellow	per lb.	0	0	10½
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	5½
" Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
" " (Caustic Soda-ash) 48 %	"	4	0	0
" " (Carb. Soda-ash) 48 %	"	4	0	0
" " (Alkali) 58 %	"	3	15	0
" " (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	14	10	0
" Arseniate, 45 %	"	11	0	0
" Chlorate	per lb.	0	0	7½
" Borate (Borax)	net, per ton	20	0	0
" Bichromate	per lb.	0	0	3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	10	10	0	0
" " (74 % Caustic Soda) " " "	9	10	0	0
" " (70 % Caustic Soda) " " "	8	10	0	0
" " (60 % Caustic Soda) " " "	7	10	0	0
" " (60 % Caustic Soda, cream) (f.o.b.) " " "	7	7	6	0
" Bicarbonate	"	5	12	6
" Hyposulphite	"	5	10	0
" Manganate, 30%	"	16	0	0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8	1½
" Nitrite, 98 %	per ton	29	0	0
" Phosphate	"	15	0	0
" Silicate (glass)	per ton	5	7	6
" " (liquid, 100° Tw.)	"	4	5	0
" Stannate, 40 %	per cwt.	3	2	9
" Sulphate (Salt-cake)	per ton	0	17	6
" " (Glauber's Salts)	"	1	5	0
" Sulphide	"	8	10	0
" Sulphite	"	5	7	6
Strontium Hydrate, 100%	"	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7½
" Barium, 95 %	"	0	0	5
" Potassium	"	0	0	7½
Sulphur (Flowers)	per ton	7	5	0
" (Roll Brimstone)	"	5	5	0
" Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26%)	"	2	7	6
Tallow	"	23	10	0
Tin Crystals	per lb.	0	0	6
" English Ingots	"	70	10	0
Zinc (Spelter)	per ton	15	0	0
" Chloride (solution, 100° Tw.)	"	5	7	6

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

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SPENT LIQUOR FROM GAS WORKS.

THE object we have in view in writing under this heading is not so much to call attention to the evil nature of this liquor as it runs away from the sulphate of ammonia stills as to hail with pleasure a process that entirely obviates the nuisance by doing away with spent liquor altogether. This noisome fluid, with its complex blends of choice stinks and its characteristic ability to betray itself, no matter how refined may be the company into which it is introduced, has long been regarded with aversion by all who have had the misfortune to be obliged to deal with it. Those manufacturers who have been in the habit of turning their waste liquors into adjacent streams and water courses, must have seen for some time that the increasing stringency with which the varied legislation for the prevention of river pollution is being carried out is every day bringing them nearer and nearer to the time when they will have to permit nature to administer its own physic to the fishes, and cease from contributing their quota to that list of perfumes which no longer finds favour with the educated nostrils of a progressive humanity. Those who have been privileged to turn their effluent into the public sewers no doubt congratulated themselves upon the good sense and the obliging disposition of the authorities so long as their day of grace continued. But that day is going—if not gone. A day of inquisition has dawned in its stead. One by one each objectionable constituent of the sewer stream is being hunted out and traced back to its lair, and then comes its utter exclusion. It will perhaps be some time before the process of selection has been so perfected that these underground streams can be drawn upon to feed fountains in our public places; but we have no small cause for thankfulness if it only goes so far as to improve the quality and decrease the quantity of the sewer gas, which, in spite of all precautions, has such an uncomfortable habit of making its way where it is not wanted. Almost everywhere the line has been drawn at spent liquor hot, and in most places at spent liquor cold. Some manufacturers have special means of disposing of this unpleasant bye-product, and to them this question is proportionately less interesting, but to the majority of sulphate makers the paper recently read by Mr. Belton, of Shrewsbury, before a meeting of the Midland Association of Gas Engineers, will appeal with the force either of anticipation or realisation. Hitherto an effluent of spent liquor has been regarded as inevitable, and hence more leniently than perhaps it deserved. Now that it has been shown that a gas manager, working under perhaps unique conditions of restriction, has been able to carry on the process of sulphate making for over twelve months without running away a single drop of spent liquor, or causing the slightest nuisance in any way to a neighbourhood jealously vigilant, we have no doubt that the attitude of the authorities will undergo a certain amount of modification. "What can't be cured," says the old proverb, "must

be endured"; but powers of endurance fail when once a cure is discovered. And when we learn that Mr. Belton not only annihilated his spent liquor problem, but, further, that he considerably increased his *net* revenue from ammonia liquor, our sympathies undergo an entire change, and are no longer with those who continue to cause a nuisance which can be so easily and so effectually prevented.

OPTICAL ACTIVITY AS A GUIDE TO CHEMICAL CONSTITUTION.*

By WM. HUNTINGTON, B.Sc.

I AM indebted for the greater part of the matter of this paper to one read by Dr. Percy Frankland, at Manchester, in 1893. After reading it, I was so much impressed with the surprising manner in which one branch of scientific investigation serves to illumine the obscure path of another, and with the marvellous success attending the correct interpretation and application of natural laws, that I felt its repetition with some unimportant additions would assuredly prove interesting and profitable. As optical behaviour deals with a branch of physics which may not have received so much attention from some as it deserves, I shall introduce my subject with a short account of the theory of light and of polarisation of light.

Light, as is well known, is an effect due to vibrations imparted to the particles of ether—that subtle, elastic, imponderable fluid, pervading all matter and all space. Sound, on the other hand, is due to the vibration of air particles, but while these vibrations are longitudinal—*i.e.*, they take place in the direction of propagation—in the case of light the vibrations of the ether particles are transverse, and at right angles to the line of propagation. These transverse vibrations take place in all directions, so that roughly we may conceive an end view of a ray of light as bearing some resemblance to a wheel, the spokes of which would indicate the paths of the vibrating particles. This description applies to ordinary light, and also to any homogeneous light, as that from a sodium flame.

But a ray of such light after passing through certain crystals is found to be resolved into two rays, the vibrations of the one being at right angles to those of the other. By means of Nicol's prism, or by other methods, it is possible to get rid of one of these rays, and we thus have transmitted a ray of light in which the direction of vibration is fixed, "each ether particle vibrates in a straight line, and these straight lines are all parallel." Such a ray of light is said to be *plane polarised*. The plane in which the vibrations take place is called the *plane of vibration*, while the plane at right angles to the vibrations is known as the *plane of polarisation*; *e.g.*, if the vibrations are in a vertical plane, then the plane of polarisation is represented by a horizontal one.

This is Fresnel's theory as to the relation of the two planes. MacCullagh opposed this view, maintaining that the plane of vibration was the plane of polarisation, but, like Proot's hypothesis, and some other praiseworthy efforts in the direction of simplification in the interests of bewildered humanity, his opinion failed to withstand the onslaught of its enemies, and received its death blow from Stokes, who confirmed Fresnel's view by a crucial experiment in diffraction. For our purpose however, it is immaterial whether we speak of the plane of vibration or of the plane of polarisation, since being mutually at right angles a rotation of one implies an equal rotation of the other.

If the plane polarised ray transmitted by the Nicol prism is allowed to fall upon a second prism held parallel to, and in precisely the same position as the first, the ray is transmitted again unaltered, but if the second Nicol be slowly rotated in a plane at right angles to the line joining the two prisms, the transmitted light gradually diminishes, and is totally extinguished when the rotation reaches 90°. The Nicols are then said to be "crossed." Thus the vibrations transmitted by the first prism are intercepted by the second. The direction of the vibrations is such that they are totally reflected by the second Nicol. If by any means the direction of vibration can be altered, then the ray will be wholly or partially transmitted by the second prism, depending upon the amount of alteration. This may be done by introducing between the two prisms certain crystals, liquids, or solutions. For example, a sodium light passed through the first Nicol (or polariser), and then on to the crossed second Nicol (or analyser) is extinguished, and a dark field is observed. Interpose between the Nicols a plate of rock crystal cut perpendicularly to its axis, or a solution of sugar, and light is transmitted at once. This indicates that the polarised ray transmitted by the polarising Nicol has had its direction of vibration altered—that is, its plane of vibration has turned, and consequently its plane of polarisation has been rotated. By rotating the analyser, the dark field is once more obtained, and the amount of this rotation measures the rotation of the plane of polarisation. The angle of rota-

tion (α) depends on (1) the thickness of the plate (or liquid layer), (2) the wave length of the light employed and generally on (3) the temperature at the time of observation. The *specific rotary power* (α) of an optically active substance is defined as "the angle through which the plane of polarisation of a given ray is rotated by passing through a column 1 decimetre long of a liquid containing 1 gram. of the substance in 1 cubic centimetre" (Pattison Muir's Principles of Chemistry). The rotation is + or right-handed when the analyser is moved clockwise, and the substance is said to be *dextro-rotary*; it is — or left-handed when contra clockwise, and the substance is then *laevo-rotary*.

Now in organic chemistry it is not unusual to meet with a substance in a variety of forms of identical composition, agreeing almost entirely in chemical properties and distinguishable by scarcely anything else than optical activity. For example, lactic acid occurs in three forms, which beyond slight differences in the solubilities of some of their salts, are identical in chemical properties, but differ in their behaviour towards polarised light, one variety rotating the plane of polarisation to the right, another to the left, and the third producing no rotation, *i.e.*, being inactive.

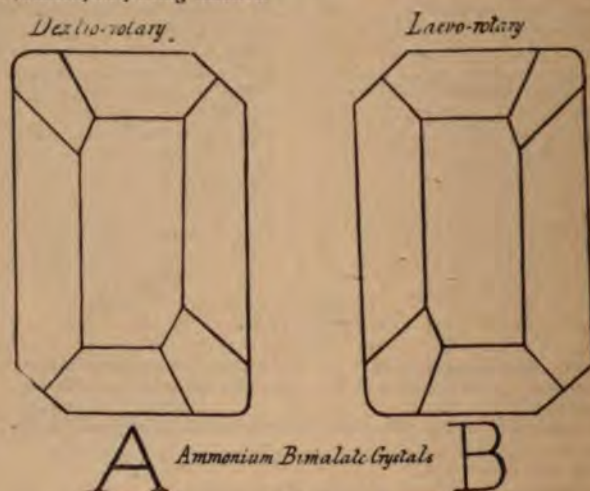
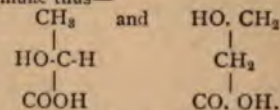


FIG. 1.

In 1861 Pasteur remarked that the difference in optical behaviour was associated with a peculiar variation in crystalline form. Thus ammonium bimalate ($\text{CH}_3\text{COOH}-\text{CHOHCOONH}_4$) occurs in crystals of the following shape: (Fig. 1.) It is to be noted that these forms are not superposable—that each is the reflection of the other as viewed in a mirror. The similarity and the difference in crystalline form have their counterparts in the chemical similarity and the difference in optical behaviour of the two varieties, for the crystal A is found to be dextro-rotary and B is found to be laevo-rotary. This fact at once suggests that optical activity has some relation to crystalline form, and as this latter depends upon the arrangement of the constituent atoms, the possible connection between optical behaviour and chemical constitution becomes apparent. Again, taking the lactic acids ($\text{C}_3\text{H}_5\text{O}_3$) two well known and easily distinguishable forms are known, represented by formulae thus—



But this first form occurs in three modifications differing but slightly, except in their action on polarised light—one has no action, *i.e.*, is optically inactive, while the other two rotate the plane of polarisation through equal angles to the right and left respectively. In chemical composition they are identical, and the ordinary graphic formulae are unable to give expression to these optical differences. To overcome this difficulty, Le Bel, in France, and van't Hoff, in Holland, viewing the atoms as arranged in the three dimensions of space, independently in 1874, conceived the idea of the asymmetric C. atom. This carbon atom is regarded as being situated at the centre of a tetrahedron, the four points of which represent points of attachment for the groups in combination with it. In this connection I might add that in a work on organic chemistry, recently published, the author assigns a tetrahedral shape to the C. atom itself, and in reply to the reviewer's criticism quotes from the "Handbuch" of V. Meyer and Jacobson that "the carbon atom may be regarded as a mass of finite extension in space of any shape with four points on its surface corresponding to the corners of a regular tetrahedron as the units of affinity."

(To be continued.)

* A Paper read before the People's Palace Chemical Society.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE opening meeting of the session was held at the Victoria Hotel, Manchester, on Friday, November 2nd. There was a good attendance. The chair was taken by R. F. Carpenter, Esq. In the course of his address he touched upon a number of subjects to which he wished to direct the attention of the members. The first of these was the question of the Health of Chemical Operatives. He spoke in terms of commendation of the recent work of Dr. Arlidge, and trusted those who were interested would not be prejudiced against this work by the biased review which appeared some time ago in the daily press. His experience of the work was that it was very free from errors. He referred to the use of compressed oxygen as a means of resuscitation, to which reference had recently been made in the technical press (*C. T. J.* 382, p. 141).

He then turned to the economy of fuel and the development of steam raising. Upon the authority of Prof. Kennedy, if only all boilers were worked up to the present best standard (about 80% efficiency), one-third the quantity of coal would be consumed yearly. Electrolytical processes were then referred to, and a short review of the chief processes made. A plea was made for the closer study of electro-chemistry. It was an undoubted fact that on the Continent, where power was cheap, electro-chemical processes were working well. In regard to the gas industry, he hoped more papers on the chemistry of gas making would be brought before the Society. There was a tendency for all these papers to find their way into other channels. He then represented the arguments for and against enrichment, emphasising the influence of hydrogen and carbon monoxide upon the height of gas flames. At the conclusion of the address I. Levinstein, Esq., moved a vote of thanks, which was seconded by Dr. Bowman, and heartily accorded. A paper was then read by Mr. George E. Davis on the "History of Chlorine Processes." This consisted of a review of all the patents connected with chlorine from 1778 down to 1876. The author stated that he was making a departure from the ordinary style of paper, and hoped some of the younger members would follow suit on other subjects. He had always desired the Journal of the Society to be a work of reference. By treating subjects in the way he had done, they would obtain a lot of information, far more valuable than the bare specifications given at present.

Out of the 166 patents, the author only described the master patents, notable among which was the first patent for making bleaching powder in 1799. Chlorate of potash was first made in 1872. Further, the author suggested that the students of technological chemistry should work out some of the older specifications in the laboratory, with the apparatus which was available to-day, and endeavour to learn where the cause of failure lay. After the usual votes of thanks a very successful meeting terminated.

LIVERPOOL SECTION.

IN his opening address to this Section on Wednesday last, the Chairman, Eustace Carey, Esq., dealt with "The Invasion of the Inventor."

The subject of this paper was selected because the inventor, his methods, and his fair remuneration are matters of almost daily concern to chemical manufacturers.

In dealing with his subject the speaker viewed the inventor from four points.

First, the manufacturer who himself invents, and thus combines three things too rarely found together—invention, capital, and experience.

Secondly, the professional inventor who possesses scientific knowledge and a genuine acquaintance with large scale operations, a favourable sample of whom was the late Mr. Walter Weldon.

Thirdly, the theoretic inventor, who possesses scientific knowledge without technical experience, and whose frequently laborious and accurate work serves in many cases to bring into strong relief the vast differences which so often exist between small scale and large scale results.

Lastly, the inventor without knowledge and without experience, and his brother the vendor of a secret process, who, together, are the scourge not only of the chemical manufacturer, but of the investing public.

In concluding, the speaker said there seemed little reason to doubt that substantial improvements in manufacture are usually effected by professionals inside the business, and not by amateurs, however inspired, who lack the training and experience which is only gained by practical large scale work.

SCOTTISH SECTION.

The opening meeting of the new Session took place in the rooms of the Society, 207, Bath-street, Glasgow, on the evening of the 6th inst. Mr. Robert Irvine (of Messrs. A. B. Fleming and Co., Edinburgh) chairman of the Section, presided, and the business was confined to his opening address. He referred to the annual general meeting in Edin-

burgh in July last, and congratulated the Section on the success which attended it, although that success had been circumscribed by the unfortunate prevalence of smallpox at the time. They hoped to be more fortunate on the next occasion of a selection of Edinburgh, and to be able to do full justice to the city and neighbourhood in the eyes of the strangers. His address consisted, in the main, of a series of running references to the various industrial questions with which Scotland is connected locally and in the chemical sense, beginning with the mineral oil industry, and taking the visit of the Society in July last to the works of the Broxburn Oil Company as a text. After giving some interesting market statistics covering a series of past years, he referred at some length to the Henderson continuous distillation retorts, in use at Broxburn, as the latest development, and showed that but for these improvements in the direction of economy of production, the Scottish mineral oil industry, in the face of foreign opposition and a prostrated market, must by this time have been a thing of the past. Burning oil at one time was the stay of the industry, but it had been ousted from that position, and sulphate of ammonia might now be regarded as the bread-winner, in virtue of the fair prices obtainable for the article, and the greatly increased output per ton of shale which had been brought about by that indomitable searching after more perfected methods of distillation, &c. He referred in a moderate tone to the flash-point agitation, and thought that there was room for improvement not only in the direction of safer oils for burning, but also in the construction of the lamps in which the burning took place. He then passed on briefly to the vexed question of the purification of paper-mill effluents as a matter of very near concernment to practical chemists of Scotland, and particularly to those of Edinburgh, this vein leading naturally to the general question of sewage treatment and refuse disposal. Gold extraction processes next called for some remarks in reference to their latest developments, and, finally, the recent Scotch miners' strike was adverted to, and the striking lesson pointed out that one of the results arising therefrom had been the adoption of English coal permanently by certain Scotch manufacturers as the best and cheapest in the long run. In conclusion he bespoke for the newly opened session, and for sessions yet to come, an increased attendance on the part of members, and an enlarged willingness for the production of papers for reading and discussion.

THAWING FROZEN MEAT.

A PROCESS for accomplishing the thawing of frozen meat has been invented by Messrs. Nelson Bros., who have an experimental chamber working at Lambeth. The chamber is provided with double doors, one of which is extremely thick, so as to shut out, as far as possible, all external atmosphere. The chamber has no windows, but is supplied with electric light. On entering one sees only some 30 quarters of beef hanging in rows on hooks, over a slightly raised open platform, with a canvas curtain at the back. Under this platform, however, there is a series of steam pipes, while behind the curtain there is a series of pipes filled with compressed ammonia, similar to those used in connection with the ordinary freezing processes. The steam pipes under the meat cause a current of warm air to ascend all round it, and as soon as this current reaches the top of this chamber it is drawn to the freezing pipes behind the curtain, by which all moisture is frozen out of it on to the pipes themselves. It accumulates there in the form of snow, which at the time of the visit of our representative, was three-quarters of an inch in thickness. The snow has to be scraped off the pipes from time to time, and it is stated that the accumulation during five days, in the thawing of 30 quarters of beef, has resulted in no fewer than 168lb. of water. During that same period the meat itself lost only 1 per cent. in weight. The purpose of the canvas curtain is, of course, to divide the ascending warm current from the descending cold current, and it is claimed that the effect of this incessant passing of the air first over the steam pipes and then over the freezing pipes is eventually to free it from all moisture, and so produce that "warm, dry air" which has been aimed at all along. When the meat is first hung the temperature of the room is almost at freezing point, but the steam is turned on gradually, until on the fifth day the temperature of the chamber has been raised to that of the air outside. By that time, it is claimed, the frost has all been thawed out of the meat, which is then in a condition to be sent to market for, if need be, immediate consumption.

A HYPO-PLATING BATH.—The hypo. bath of the photographer after it has been used for fixing will act as a plating bath. It is enough to put into it the article to be plated with a bit of zinc resting on it, when a coating of silver will soon make its appearance. Medals and coins can be quite prettily plated in this way. Where wire tongs are used for handling negatives, the ends of the tongs will often become quite thickly plated by their repeated immersions in the liquid in the hypo. tray.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last, at the offices, Manchester. Mr. Alderman J. Thompson was in the chair. Mr. T. W. Killick moved the report of the Consulting Sub-Committee. The report stated, there was an improvement in the samples from the Dayhulme Works of the Manchester Corporation. Two months was allowed. In regard to Swinton a deputation attended, who explained that the bad effluents complained of were those passed over land. The land was not of the best for filtration purposes. Four samples had been taken during the past month from the works; two samples from the filters and two from the land treatment. Of the two samples from the filters, the first was passable and the second not satisfactory, but the two from the land were bad. The whole of the sewage at the works is passed through precipitation tanks, and subsequently about one-half of the effluent is turned on to the filters, and the other half on to the land.

The deputation stated that it was the intention of the Council to shortly take the sewage treatment in hand themselves, and to extend the International process and artificial filters. The matter was adjourned one month. Two months were given to Crompton. Five authorities were accorded one month. The clerk was directed to send a letter of complaint to five more. To Knutsford a letter was to be sent stating that proceedings would be taken in the absence of immediate improvement. It was decided to prosecute Middleton. The new proceedings against Salford were approved, as was also the appointment of Mr. J. W. Morrison as sub-inspector.

Sir Henry Roscoe then presented his report, in which he said:—With regard to the effluents from sewage works he had recently had occasion to review the results of a large number of determinations made from the oxygen consumed from permanganate of potash acting on the effluent water. Altogether 231 determinations had been made up to date, and the results of each determination were set forth in four diagrams. The test was of the greater value, because not only was it a most reliable method for estimating the presence and quality of the organic matter, but a large number of determinations might be made in a comparatively short space of time and comparisons drawn between the various effluents from sewage works. His assistant, Mr. Scudder, had at his request made a number of chemical tests on various samples of sewage effluents and of water taken from the Ship Canal.

TENTATIVE STANDARDS.

For the purpose of comparison he had taken the three standards of one-tenth grain per gallon albuminoid ammonia, quarter grain oxygen per gallon three minutes' reaction, one grain oxygen per gallon four hours' reaction. Twenty-three analyses were given of nineteen effluents from the treatment of sewage and of four samples of water from the Ship Canal. Of the nineteen effluents eight came within the three standards, eleven complied with two of the standards, twelve complied with one of the standards, and seven were outside all the standards. Of the four samples of water taken from the Ship Canal none complied with all the three standards, one complied with two of the standards, and two complied with one of the standards. It must be distinctly understood that the standards named were only adopted for the purpose of criticising and comparing the results in those particular cases, and they must not be taken as definite standards. The county boroughs, with the exception of Rochdale, were in an unsatisfactory position. The population of the seven county boroughs was 1,148,699, and the sewage from 43 per cent. of this population flowed untreated into the rivers at the present time. Manchester was treating by chemical precipitation the sewage from a population of 269,865, but the effluent from the chemical treatment alone could not be considered satisfactory. Bolton, with a population of 115,000, was turning out a most unsatisfactory effluent, and Salford, with a population of 198,000, was in a similar position. Rochdale, on the other hand, with a population of 71,400, was treating its sewage efficiently. Bury, Oldham, and Stockport had not yet sewage works in operation. Of the eleven non-county boroughs, representing a population of 294,277, Hyde, with a population of 30,670, was the only one in which a sewage treatment was at work satisfactorily. With regard to 56 urban sanitary authorities, representing a population of 608,259, twenty-seven, with a population of 261,134, had no sewage works in operation; twenty-two had sewage works, and, generally speaking, turned out satisfactory effluents from a population of 230,756, and seven had sewage works turning out unsatisfactory effluents from a population of 116,369. In other words, the sewage from 43 per cent. of the 608,259 population flowed untreated into the rivers; 38 per cent. was satisfactorily treated, and 19 per cent. unsatisfactorily treated. With reference to rural sanitary authorities, the results from twelve sewage works, with one exception, were fairly satisfactory. Whilst he had considered it his duty to point to the Committee the exact position at the present moment in regard to the sewage effluents, yet the proceedings of the Committee showed that great progress was being made for the completion of sewage works, and

that those authorities whose works were shown to be unsatisfactory were being compelled by the Committee to take the necessary steps to ensure satisfactory results. By means of the analyses the Committee might obtain a clear idea of how matters at present stood. He need scarcely say that the difficulties of treatment of towns like Manchester, Salford, or Bolton were much greater than with rural sanitary and the smaller urban authorities. Therefore, when they saw such places doing their best the Committee would probably see that sufficient time was allowed. He thought both manufacturers and local authorities were anxious to do what the Committee wished.

We append some of the analyses, showing the ten worse samples of sewage effluents and water as regards the oxygen test. The results are expressed as grains per gallon.

	Oxygen Absorbed.		Ammonia.		Chlorine.
	4 hours.	Free and Saline.	Albuminoid.		
Ship Canal Water..	2'05	0'68	0'148	7'0	
Ship Canal Water..	1'13	0'42	0'084	—	
Ship Canal Water..	0'82	0'32	0'104	—	
Salford	3'08	2'16	0'252	14'0	
Farnworth	2'59	1'44	0'264	6'4	
Bolton	3'89	2'50	0'574	7'5	
Atherton (Glass House)	1'78	2'63	0'226	5'8	
Leigh	1'49	1'064	0'185	9'3	
Prestwich	1'52	1'92	0'266	4'2	
Hindley	0'99	1'168	0'109	8'7	
Turton	0'88	1'316	0'14	3'0	
Norden	1'74	2'34	0'18	3'8	

Dr. Hewitt thought the Ship Canal water bad, and pleaded for biological, as well as chemical, examination. Mr. Alderman Walmsley, in moving a vote of thanks for the report, said it was extremely valuable, for it gave them at length some sort of a standard. After some discussion, it was decided that samples of the Ship Canal water should be taken.

The recommendations of the

CHEMICAL SUB-COMMITTEE

were accepted. Eleven cases were adjourned. Letters demanding better progress were ordered to be sent to four manufacturers, two of whom were invited to attend at the next meeting to show cause why proceedings should not be taken against them. Notice of consent to the prosecution of Messrs. Sykes Bros., bleachers, Oldham, was received from the Local Government Board. The business then terminated.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending October 20th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'37	10'86	0'28	NIL.
South Metropolitan Gas Co.	6	16'46	11'4	0'33	NIL.
Commercial Gas Co. ..	2	16'3	7'85	0'5	NIL.

The supply for the week ending Oct. 27th was also good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16'5	11'16	0'33	NIL.
South Metropolitan Gas Co.	6	16'38	11'33	0'41	NIL.
Commercial Gas Co. ..	2	16'45	9'4	0'65	NIL.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

PROPERTIES OF STEAM AT VARYING TEMPERATURES AND PRESSURES.

Pressure above the Atmosphere. Lbs. per Sq. In.	Deg. F.	Heat Units.		Cubic Feet Steam from 1 Cubic Foot of Water.
		Latent.	Total from 32°.	
0	212	966	1,146	1,640
1	215	963	1,147	1,544
2	219	960	1,148	1,456
3	222	958	1,149	1,378
4	224	957	1,150	1,310
5	227	954	1,151	1,247
6	230	952	1,151	1,190
7	232	951	1,152	1,138
8	235	949	1,153	1,089
9	237	947	1,154	1,048
10	239	946	1,154	1,008
11	241	945	1,155	969
12	244	942	1,156	936
13	246	941	1,156	904
14	248	940	1,157	875
15	250	938	1,158	846
16	252	937	1,158	820
17	253	936	1,158	796
18	255	935	1,159	774
19	257	933	1,160	743
20	259	932	1,160	732
21	260	931	1,161	713
22	262	930	1,161	694
23	264	928	1,162	676
24	265	928	1,162	660
25	267	926	1,163	644
26	268	925	1,163	630
27	270	924	1,164	615
28	271	923	1,164	602
29	272	923	1,164	589
30	274	922	1,165	576
31	275	920	1,165	564
32	277	919	1,166	553
33	278	918	1,166	542
34	279	918	1,166	532
35	281	916	1,167	521
36	282	916	1,167	512
37	283	915	1,168	503
38	284	914	1,168	494
39	285	913	1,168	485
40	286	912	1,169	476
41	288	911	1,169	468
42	289	911	1,169	460
43	290	910	1,170	453
44	291	909	1,170	446
45	292	908	1,170	439
46	294	907	1,171	432
47	295	906	1,171	426
48	296	906	1,172	419
49	297	905	1,172	413
50	298	904	1,172	407
51	299	904	1,172	401
52	300	903	1,173	394
53	301	902	1,173	387
54	302	901	1,173	384
55	303	901	1,174	379
56	304	900	1,174	374
57	305	899	1,174	369
58	305	899	1,174	364
59	306	899	1,175	360
60	307	898	1,175	355
65	312	894	1,176	355
70	316	891	1,177	315
75	320	889	1,179	299
80	324	886	1,180	284
85	328	883	1,181	271
90	331	881	1,182	258
95	334	879	1,183	248
100	338	876	1,184	238
110	344	872	1,186	220
120	350	867	1,188	203
130	355	864	1,190	190
140	361	860	1,191	179
150	366	856	1,193	169
160	370	853	1,194	159

Legal Intelligence.

HIGH COURT OF JUSTICE. CHANCERY DIVISION.

(Before Mr. Justice Romer.)

THE INCANDESCENT GAS LIGHT COMPANY (LIMITED) v. THE DEIMEI LIGHT COMPANY (LIMITED) AND HIRSCHFELD.

This was an action in which the plaintiffs claimed the usual relief in a patent action. The plaintiffs are the assignees of letters patent granted to Carl Auer von Welsbach for an illuminant appliance for gas and other burners. The defendants are either the assignees or the licensees of letters patent granted to Hans Hirschfeld for an invention entitled "Improved incandescent mediums for purposes of illumination." It is alleged by the plaintiffs that the defendants have infringed the plaintiffs' letters patent. The defendants deny infringement, and plead a secret process.

The Court was occupied two days hearing evidence. Eventually a compromise was arranged by which the defendant company submitted to an injunction in respect of all the patents, no order being made as to the costs of the action.

Reports of Companies.

THE PRIMITIVA NITRATE COMPANY, LIMITED.

According to the report of this company the net loss for the year has been £12,858. The balance carried forward from last account was £8,233, add amount carried back from reserve fund £6,000.—£14,233; deduct loss as above £12,858, carrying forward to next account the balance of £1,374. The directors much regret the unsatisfactory result of the year's working, which is owing to the fact of the grounds not giving such a good supply of caliche as was expected. The Modesta grounds, consisting of 33 Peruvian estacas, have been purchased jointly with Mr. Perfetti from the Government, at the sale in June last, for the total sum of £30,000. It was considered advisable to send out Mr. George Hicks, a gentleman thoroughly conversant with nitrate grounds and works, to arrange with Mr. Perfetti for the division of these grounds, and to report on the grounds of the company generally. This has been done, and Mr. Hicks has cabled home that the future prospects of the company look brighter. In order to reduce the working expenses, owing to the grounds not yielding sufficient caliche to keep so large a *maguina* fully working economically, the directors have sold a portion of same for the sum of £30,000, the remaining portion being quite equal to the requirements of the *oficina*. A new manager has been appointed, and he is most hopeful of the future prospects of the company.

THE COLORADO NITRATE COMPANY, LIMITED.

The report for the twelve months ending June 30th, 1894, states that the directors propose to place to reserve fund an additional amount of £5,000 (raising this fund to £25,000), and to pay a further dividend on November 15th next of 4 per cent. (being at the rate of 8 per cent. for the year), carrying forward to next account, pending the settlement of the claim against the Chilean Government for \$59,936 10., a balance of £14,368.

THE LIVERPOOL NITRATE COMPANY, LIMITED.

The directors in their report for the 12 months ending June 30th, 1894, propose to place to reserve fund an additional amount of £10,000 (raising this fund to £30,000), and to pay a further dividend on Nov. 15th of 15 per cent. (being at the rate of 30 per cent. for the year), carrying forward to next account, pending settlement of the claim against the Chilean Government amounting to \$123,443 13., the balance of £36,751.

THE GLYCIN-HAUFF DEVELOPER.—It may not be generally known that glycin is a good developer for wet collodion emulsion plates, and we give below a formula, recommended by Messrs. Fuerst Bros., which may be of interest. Make the following solution for stock:—2 ozs. pure sulphite of sodium (crystallized) are dissolved in 4 ozs. (fluid) warm water; add thereto $\frac{3}{4}$ oz. glycin, 4 ozs. carbonate of potassium. This latter must be added by degrees on account of the carbonic acid which is liberated. This makes a thin, pasty solution, and will keep well in open vessels, because the glycin alkali is not dissolved, but is kept suspended. For use, shake the solution and take one part thereof and dilute same with 12-15 times the quantity of water.

Our Book Shelf.

THE RISE AND DEVELOPMENT OF ORGANIC CHEMISTRY. By the late C. Schorlemmer. 280 pp. Including Index and Plate of the Author. Revised Edition. Edited by A. Smithells. London: Macmillan and Co. 1894. 5s.

This interesting work traces in a most exact fashion the beginning and rise of organic chemistry. The first edition has been much improved upon and brought up to date from the manuscript which the late author had left. A brief but comprehensive biographical notice of the late Dr. Carl Schorlemmer has been introduced at the commencement of the work. The first four chapters deal with historical researches, and the theories promulgated by Liebig, Dumas, and Berzelius, indicating the difficulties under which the organic chemistry of to-day has grown up. In chapter 4 we have a description of Gerhardt's theory of types and other kindred theories, terminating in the establishment of valency.

Chapters 5 to 10 inclusive, familiarise us with the development of the science and the methods of investigation adopted. In these chapters we have the first, and Kekulé's final definition of organic chemistry, which, though adopted to-day, is not rigidly adhered to, certain compounds which should strictly come under organic being treated in the inorganic section. Chapter 6 deals with formulae, and from 7 onward we have an account of the development of synthetical discoveries, also Dalton's, Henry's, Berzelius', and Faraday's work on Isomerism. The founding of the Asymmetrical theory of carbon atoms. The latter chapters are full of the most interesting as well as historical information, for in them will be found a description of the work which traced complex bodies to their primitive source, to be followed by the synthetical building up of such compounds as urea, acetic acid sugars, oil of bitter almonds, salicylic acid, and vanillin. The history of the synthesis of alizarine is particularly interesting, as is also the account of the synthesis of indigo.

The work as a whole is one of great interest, and to those in any way interested in chemistry will be found most fascinating reading. We can also recommend it to those who, without professing to be chemists, desire to know something of the growth of the great aniline dye industry of to-day and the now familiar products of that industry.

COULEURS ET VERNIS. By Georges Halphen 388 pp. Including index. 29 illustrations. Paris: J. B. Baillière et Fils. 1894. 4s. 6d.

This work is one of a series which are being published in separate parts, the whole forming an encyclopædia of the chemical industries and metallurgy. It is an advance upon a good many so-called technical works of French origin, but it is yet some way behind our latest technological works on paints, colours, and varnishes. The book is well arranged and printed. It is much more practical than the majority of such works. The information about each colour and class of colours is placed all together. Almost all the manufacturing processes are well described. White lead receives a good deal of attention, and the processes described are many. One or two of the latest methods of manufacture however are not to be found. The description of the manufacture of lamp black is perhaps the most unsatisfactory, being very meagre. Yellows, blues, and greens, whether simple or compounded, are all fully dealt with, the composition, preparation, and properties being given for each colour. The varnish section contains some useful recipes, and the descriptions of processes, if somewhat scanty, have been brought up to date. Otherwise this section does not call for much comment.

The work is an advance upon many of the hand-books of technology, but is not likely to be of service to English manufacturers, apart from the information about French processes and methods of colour-mixing.

SECOND ANNUAL REPORT OF THE KALA BHAVAN. By T. K. Gajjar. 99 pp., with appendices. 1891-2.

According to the report this Kala Bhavan (Temple of Art), which is about equivalent to one of our Technical Schools, good educational work is being done in India, at Baroda. There were 382 students at the end of 1892. The Kala Bhavan is made up of schools of art, architecture, mechanical technology, chemical technology, agriculture, and general education.

The attendances appear good, and the staff is extensive and able. The reports of the specialists who have inspected the college are favourable. A feature is made of dyeing, and practical instruction is given in this subject. In this connection, with a view to fostering the dyeing industry, Mr. Gajjar and Mr. Deshmukh have started a paper called the "Rasa-Ranga-Rahasya," devoted to the chemical and tinctorial trades. It is the first paper of its kind in India, and is printed in the Bhavan in the Gujarati dialect. We cannot therefore speak critically of its literary merits, but the success Mr. Gajjar has made of the Kala Bhavan speaks well for it.

THE TRINIDAD ASPHALTE INDUSTRY.

THE famous pitch lake near the village of La Brea, in Trinidad, is probably the largest deposit of asphalt in the world. It occupies what is thought to be the crater of a mud volcano, and has an area of over 100 acres. Its depth is unknown, but borings have been made which show that at least in some places it is over 200 ft. The surface is, as a whole, so firm that it can be walked over with ease, though the rivulets and pools of water which are scattered over it at times impede progress. At one or two points, however, soft pitch is still welling up, accompanied with the evolution of sulphuretted hydrogen gas, and here a man sinks up to his knees in a very few minutes. Even the apparently solid asphalt is quite viscous, and hence the general level of the lake is slowly sinking as digging goes on. The movements taking place in the mass are illustrated by the fact that a couple of islands which were considered to be stationary have lately been discovered to be gradually moving. Besides the pitch lake there are in Trinidad some other asphalt deposits, which are, however, of no great importance. They consist of pockets of pitch, which are found in the land surrounding the lake. Whether they are the results of the overflowing of the lake at some former time or whether they are of independent origin, is a point which does not appear to be definitely settled, but it is pretty well agreed that the asphalt obtained from them is not the same as that of the lake. Physically it is less tough and viscous, while chemically it contains a smaller percentage of bitumen. Of late very little, if any, has been exported. The reason for this is partly, no doubt, its recognised inferiority for industrial uses, but more especially the fact that the concessionnaires have acquired all the ground in which land pitch exists with the exception of a little in the village of La Brea and some Crown land. From the latter, under the terms of the agreement, pitch may not be exported.

The Trinidad traffic in asphalt has only become important within comparatively recent times. Twenty-five years ago the total export was under 6,000 tons. In 1882 it had risen to nearly five times that quantity, while in 1892 it exceeded 100,000 tons. The appliances for transporting the asphalt from the lake to the sea—a distance of about a mile and a half—have recently been greatly improved. Formerly it was conveyed in mule carts, and the arrangements for shipment were somewhat clumsy. Now there is an overhead tramway running down from the lake to the end of a long pier, where the material is tipped directly into the boats. By the time it reaches the end of its voyage it has run into a homogeneous mass, and has to be dug out in much the same way as it was originally from the lake.

The development of this asphalt trade is of considerable importance to the colony of Trinidad, seeing that the Government receives a royalty of 6s. 8d. on every ton exported. The income thus obtained is more than sufficient to pay the interest on the public debt, and has the additional advantage of costing very little to collect. The concessionnaires deposit £10,000. with the Government at the beginning of the year, and pay royalties on the quantity exported over and above the 30,000 tons covered by the deposit.

Of the numerous industrial applications of Trinidad asphalt, probably the most important is to the construction of roadways. For this purpose it has been much more widely used in America than in this country, or, indeed, in Europe. There is, of course, a good deal of asphalt pavement in London, Paris, and Berlin, but it is not the same as that used in America. It is made of rock asphalt—that is to say, limestone naturally impregnated with a certain amount of bitumen, usually under 10 per cent., which is found in various places in Europe, such as Seyssel in France, Val de Travers, near Neuchâtel, Ragusa in Sicily, and Limmer in Germany. In America sharp sand is substituted for the limestone. Thus the specifications for standard asphalt pavement in the city of Washington, where the subject has been carefully studied, both in its practical and scientific aspects, prescribe for its composition 79 to 84 parts of sharp, clean river sand, three to five parts of limestone dust, and 13 to 16 parts of asphalt cement, which is a mixture of refined asphalt (generally Trinidad) and heavy petroleum oil. There appear to be considerable differences in the practical results obtained from the two pavements. In 1876 experiments were made in Washington to test their relative merits, and the rock asphalt was rejected as being "too slippery for practical use." The Trinidad asphalt, however, proved satisfactory, and there are now over a million and a half yards of it in that city alone. It has been widely adopted, too, by other American cities, and according to a recent report of the United States Government, there were in America at the end of last year 14,670,286 square yards of asphalt pavement, more than half of which has been made with Trinidad Lake asphalt.

OBITUARY.—We regret to announce the death of James Fielding, eldest son of Hannah Fielding, the well-known chemical contractor, of Fairfield Bridge Stoneworks, Droylsden.

Trade Notes.

THE CYANIDE GOLD EXTRACTION CASE.—The judgment of Mr. Justice Romer, which has been expected daily throughout the week, was delivered on Thursday. The case was an action brought by the Cassell Gold Extracting Company, Limited, against the Cyanide Gold Recovery Company, Limited, for infringement of their patent. The defendant company contended that the plaintiff's patent was not valid, having been anticipated. In his judgment his Lordship held that the plaintiff's patent could not be sustained. A full report of the judgment will appear next week.

THE SEMET-SOLVAY PATENTS EXTENDED.—An application was made on Thursday to the Judicial Committee of the Privy Council for an extension of the patents of Messrs. L. V. Semet and E. Solvay in connection with coke ovens. Their Lordships agreed to humbly recommend Her Majesty to prolong the letters patent for five years. Fuller report will be given in the next issue.

ANOTHER PETROLEUM LAMP FATALITY.—A fire, caused by the bursting of a petroleum lamp, occurred last week at a house in Blackfriars-road, Oxford, and Mrs. Smith, the occupier, was so severely burnt that she subsequently died.

SODIUM NITRATE RETURNS.—The Permanent Nitrate Committee's public statistical circular for November states: "Total exports to Europe, October, 2,732,000 quintals; loading for Europe, November 1st, 3,600,000 quintals; imports, Europe, October, 89,650 tons; deliveries in Europe, October, 54,300 tons; visible supply, Europe, November 1st stocks and afloat, 355,660 tons.

FIRE AT A DYE WORKS.—A fire occurred late on Saturday night last, at the works of the Horrocks Lane Dyeing Company, at Red Bank, Manchester. The works are carried on in a building of three storeys high, and this was discovered to be on fire. The fire brigade at once attended, and after working several hours put out the flames. Considerable damage was done.

NEW MARKETS FOR TEESIDE SALT.—Inquiries are circulating for two large vessels to take cargoes of salt from the South Durham salt field to New Zealand, which is a new market for Teeside salt. In addition to the large quantity of salt which is about to be sent to New Zealand, considerable cargoes will shortly be forwarded from the Tees to South America, which is another new market for salt.

THE NEW CHEMICAL WORKS IN THE STATES.—The construction of the works of the Norfolk and Carolina Chemical Company, at Pinner's Point, near Norfolk, Va., is now under way. The foundations for one of the four main buildings are completed. The factories to be operated by this company will cover about 10 acres of ground, and will include over 20 buildings, each of which will be devoted to the manufacture of a different article.

A CHECK TO THE STANDARD OIL COMPANY.—The Supreme Court of Pennsylvania has stopped the Standard Oil Company in its progress of absorbing the independent oil refineries in the country. A deal had been made to buy out the Producers and Refiners' Oil Company. John J. Carter, of Franklin, a stockholder, objected, and secured an injunction in the Venango County Courts by which the deal was stopped. The Supreme Court, without discussing the questions involved, made the injunction permanent.

ADULTERATING MILK.—At the City Police Court, Manchester, on Wednesday, George Alfred Whittaker, farmer, Bank Farm, Crewe, was fined £10, and costs in two cases for having adulterated milk. On September 28th Inspector Holland, of the Nuisance Department of the Corporation, took two samples of milk sent by Whittaker to a local tradesman, and analysis showed that one sample was adulterated with water to the extent of 24 per cent., and the other to the extent of 34 per cent. Mr. Estcourt, who had made the analysis, said it was one of the worst cases that had come under his notice.

THE RE-DIRECTION OF POSTAL PACKETS.—Mr. Morley announces that on the 1st January, 1895, free re-direction of all postal packets, with the exception of parcels, will be allowed. In his opinion free re-direction is a reform which imposes a burden entirely out of proportion to the benefit to the public, but as the present system of refusing it to circulars and book-packets imposed an enormous burden on the returned letter department, he had agreed to sanction this fresh concession. We cannot quite agree with Mr. Morley about the matter of public benefit. We are glad the returned letter department has felt the inconvenience of the present one-sided arrangement.

GOLD PRODUCTION FOR OCTOBER.—The Crown Reef Gold Mining Company, Limited, report the following results:—Yield in smelted gold from 120 stamp mill, 6,529 ounces; yield from tailings and concentrates produced by the mill, 3,312 ounces; yield from old cyanide works, 1,207 ounces; total, 11,048 ounces. The Nigel Gold Mining Company, Limited, report that last month's crushings yielded—Battery, 2,286 ounces; cyanide, 1,852 ounces; total, 4,138 ounces. The Van Ryn Estate and Gold Mining Company, Limited, report the result of 27 days' working as 1,748 ounces, 4,000 tons, 45 stamps; cyanide works, 1,000 ounces, 7,000 tons.

WATERED BEER.—At the Thames Police-court, London, on Tuesday, H. Dorman, a licensed victualler, of Woolmore-street, Poplar, was summoned, at the instance of the Commissioners of Excise, for diluting beer with water. It was alleged that the dilution was at the rate of three-and-a-half gallons of water to the barrel of 36 gallons. Pleading "Guilty" he was fined £25, or, in default, one month's imprisonment.—Alfred Gooch, a publican, of Brunswick-street, Poplar, pleaded "Guilty" to a similar offence, and was likewise fined £25, or five weeks' imprisonment.

THE DIFFERENCE BETWEEN PARAFFIN AND PETROLEUM.—Anent the familiar heading "Another Paraffin Lamp Accident." J. Bain, Esq., calls attention to the difference between paraffin oil and rock petroleum. A paragraph appeared recently in the *Daily Press* with reference to a paraffin lamp explosion at Fountainbridge, Edinburgh. He investigated the matter with the following result. The occupants of the house went out at night leaving the lamp burning. On returning they found the room full of smoke. While about to turn it down an explosion occurred shattering the glass fount and the chimney. The flame took hold of some woodwork, but was soon extinguished. Fortunately nothing more serious occurred. He obtained a sample of the oil and the name of the vendor. From her a sample of the oil she was selling was obtained. On analysis it was found that both samples were identical. The oil was Russian petroleum, and had a specific gravity of 0.822, and a flash-point of 85°F. The explosion referred to was not a paraffin lamp explosion. Paraffin oil would not have exploded under the circumstances herein stated.

COFFEE "SUBSTITUTE."—At the Bradford Borough Police-court, last week, John Worsnop, the manufacturer of a preparation known as "Fruitonic," was summoned by the Inland Revenue authorities for selling a substitute for coffee without having the necessary stamp affixed to the canister containing the preparation. Each quarter-pound tin, it was stated, should have a halfpenny coffee stamp affixed, and the defendant had neglected to comply with this provision in the law.—Mr. Harkness, of the Government Laboratory, Somerset House, stated that the preparation consisted simply of bran, with a little sugar, roasted and ground like coffee. It was sold at sixpence per quarter-pound tin, and was worth a halfpenny. Though it was claimed on the label to possess more nutriment than four times as much coffee or tea, it had none of the properties of those articles. In defence, the defendant pleaded ignorance of the law, stating that he did not know there was such a thing as a stamp for coffee. As the authorities did not press for a heavy fine, the Stipendiary only inflicted one of 40s. and costs, but pointed out that the defendant was liable to a £20. penalty.

THE GROWTH OF THE SEMET-SOLVAY COKE OVEN.—At the Antwerp Exposition a graphic diagram was shown of the progress of the Semet-Solvay coke oven since 1882, the first practical trial having been made in that year by M. Semet, with six ovens put up at No. 2 Bellevue shaft, of the Societe des Charbonnages de l'Ouest de Mons. After the experience of a year had proved the excellence of the system, the Solvay Company made further trials with a bank of 25 ovens, which were ultimately taken over and worked by the Bois du Luc Company. At the present time there are 100 ovens at Havre, owned by that company; 52 at Seraing, owned by the Societe John Cockerill; 25 at Ghlin, near Mons, belonging to the Societe du Nord du Flenu; 75 at Couillet-lez-Charleroi, belonging to the Societe de Marcinelle et Couillet; 25 at Flemalle-lez-Liege, Societe des Kessales; 50 at Bois-du-Luc; 50 at Drocourt, in the Pas-de-Calais; 48 at Ruhrort, owned by the Phoenix Company; 25 at Brymbo; 30 at Northwich; and 12 at Syracuse, in the United States, making a total of 492, producing 593,500 tons of coke from coals containing from 15 to 35% of volatile matter.

THE DEVELOPMENT OF APPLIED CHEMISTRY.—In a recent lecture on this subject given by Dr. Harden, at the Owens College, Manchester, the speaker traced the progress of applied chemistry down to the end of the 18th century, at which period the discoveries of Lavoisier gave rise to a considerable amount of chemical industry in France. From Liebig's School many chemical industries sprang, one of which was the manufacture of artificial fertilizers. Liebig was the first to introduce research as a regular means of chemical education. As the direct outcome of that research they found Hofmann, a pupil of Liebig, contributing to the foundation of the coal tar industry. That industry had its birth in England, but it gradually passed into the hands of the Germans, a fact largely due to the superior scientific education given in Germany. Dr. Harden quoted the words of Dr. Caro, a German authority, to the effect that "every technical chemist should receive a thorough foundation of theoretical knowledge, rising to the point of the independent solution of chemical problems." In this direction much remained to be done by those bodies who had it in their power to provide for such instruction, and it was to be hoped that in the future, instead of spending so much of their strength in the establishment of small schools in which the required instruction could not possibly be obtained, they might pay a greater amount of attention to securing for their technical students that thorough training on which in great measure the future of British industries depended.

THE CONGELATION OF SULPHURIC ACID.—M. Raoul Pictet recently described some new experimental researches on the congelation of sulphuric acid of different degrees of concentration. Four extensive series of experiments carried out on large volumes of the acid, in different ways and with all the precautions indicated by the study of the laws of crystallisation at low temperatures, yield concurrent curves which include the cases between pure H_2O and pure H_2SO_4 . This curve crosses the line of zero temperature five times—including origin with pure H_2O . On descending parts of the curve the liquid contains a larger proportion of acid than the solid, on ascending parts the inverse is the case; at the summits of the curve the titre of the liquid is the same as that of the solid. The maxima and minima do not, in general, correspond to definite hydrates.—*Nature*.

THE PRODUCTION OF PERFUME IN FLOWERS.—Mons. E. Mesnard has been making experiments in this direction, from which he has found that the oil generally occurs in the epidermal cells of the upper surfaces of the petals or sepals, but may occur on both surfaces, especially if the floral parts are completely hidden in the bud. In every case the oil seems to have its origin in the chlorophyll. This is quite comprehensible, if it be admitted, as is generally done, that the floral parts are only leaves which have been modified to fulfil new functions. The perfume of a flower is not noticeable until the essential oil has sufficiently freed itself from the intermediate products from which it is formed, and its occurrence is in some way inversely proportional to the production of tannin and of pigments in the flower.

ADULTERATED LARD: A £10. FINE.—At the City Police Court, recently, Edward William Jones, grocer, Brook-street, Chorlton-on-Medlock, Manchester, was summoned for selling an article which was not of the nature, substance, and quality demanded by the purchaser. Inspector Holland, of the Nuisance Department of the Corporation, visited the defendant's shop and purchased a pound of lard. He paid fivepence for it, and it was wrapped in a paper labelled "margarine." The sample was analysed and found to be adulterated with foreign fat to the extent of fifty per cent. The defendant's assistant, who gave evidence, admitted that he knew the lard was adulterated when he served it, but said he thought by putting it in the margarine paper it would prevent his employer from being summoned.—Mr. Rooke, superintendent of the department, said the offence was a serious one. The shop was in a poor neighbourhood, and the mixture for which fivepence was charged would not cost more than threepence.—The defendant was fined £10. and costs.

GENERAL PHOSPHATE CORPORATION, LIMITED.—Last week, in the Appeal Court, in *re* the General Phosphate Corporation, Limited, the Attorney General, with whom was Mr. Ingle Joyce, moved *ex parte* on behalf of the Board of Trade against the refusal by Mr. Justice Vaughan Williams to order the public examination of certain persons who were directors or promoters of this company. The ground taken by the learned judge was that no public examination could be ordered on a report of the Official Receiver which did not state that in his opinion a fraud had been committed. In the present case the Receiver's report did not go to that extent, but did state that there was a case for inquiry, and that it was desirable that the persons named should be examined as to the conduct of the company's business.—Their Lordships were of opinion that the construction previously put upon the statute by this Court was right, and that there was no power to put in force the process of public examination upon a report which did not show upon the face of it that some fraud had been committed. They, therefore, refused the application, but gave leave to appeal to the House of Lords.

ANSWERS TO CORRESPONDENTS.

- P. S. AND SONS.—It is all that is to be found in the returns. From our experience it is the usual package which varies in accordance with the nature of each different article.
- T. Y.—This next week most probably.
- C. E. AND CO.—We are pleased to receive your complimentary remarks, and were satisfied you would find an advertisement beneficial.
- W. BROS.—It is all we are able to state.
- J. M.—Thanks for advice.
- J. B.—We are always glad to have such communications.
- F. BROS.—This week.
- E. C.—Many thanks for letter.
- A. B., H. C., AND X.—There has been a run on the number which precludes any possibility of our doing so.

FOREIGN REMITTANCES.

Owing to the inconvenience created by the various ways in which foreign subscriptions are remitted, we respectfully beg to inform subscribers that a *Crossed MONEY ORDER* is the most satisfactory method of remitting, both for them and ourselves. In the case of a Money Order, a letter advising us of same should always be sent, otherwise, owing to post-office formalities, much delay in tracing and acknowledging foreign remittances is inevitably entailed in this country.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are quiet. Berzols are dull at 1s. 2d. for 90's and 50/90's. Carbolic acid generally is rather weak, with but a moderate demand. Crude, 60%, is quoted 1s. 6d., and crystals, 40%, 5½d. Crude naphtha remains at 5¼d. Solvent is difficult to move at 1s. 2d. Creosote and anthracene are unchanged. Pitch keeps firm, full prices being obtained, f.o.b. East Coast, for spot and forward.

Sulphate of ammonia is quiet, and buyers are scarce. Prices are easier, but are not likely to decline abnormally. Beckett is quoted £12. 7s. 6d., London outside makes £12. 7s. 6d. to £12. 10s., Liverpool £12. 7s. 6d., Hull £12. 7s. 6d., and Leith £12. 7s. 6d. to £12. 5s.

MISCELLANEOUS CHEMICAL MARKET.

The condition of business generally in the alkali trade gives no hope of any early improvement. Under the stress of competition it is impossible that any material improvement in prices can be looked for. Ammonia alkali, 58%, is offering still at £3. 2s. 6d. per ton for prompt and forward delivery. Soda crystals, £2. per ton, bags, f.o.r. Caustic sodas on the spot are without change, viz.: f.o.b. Tyne, 77%, £10. 10s.; f.o.b. Liverpool, 74%, £9. 10s.; 70%, £8. 10s.; 60%, £7. 10s. per ton, 10-ton lots and upwards. For forward delivery over 1895, 5s. per ton lower prices have been accepted. Bleaching powder continues firm at £7. 5s. to £7. 7s. 6d., f.o.r. makers' works, and £7. for forward delivery. Chlorate of potash 5½d. per lb., prompt and forward, though few buyers are disposed to purchase meantime. Chlorate of soda 6¼d. Sulphate of copper is still ruling at £14. 10s. to £14. 15s., f.o.b., with moderate inquiry. Borax 20s. per cwt. for English refined. Boracic acid 31s. per cwt. Acetates of lime are irregular, but the spot prices are lower: brown at £6. 10s., and grey at £10. 5s.; for forward delivery prices are higher. Acetates of soda, lead, and acetic acid are all unchanged meantime. Demand still continues active for best brands of potash, caustic and carbonate. White powdered arsenic firm at £14. 2s. 6d. to £14. 5s., and only in limited supply. Carbolic acid crystals are a shade easier at 5½d. for 39 40%, in quantity. Prussiate of potash unaltered at 10¼d. to 10½d. Sulphites and hyposulphites of soda are generally a turn easier in value. Sulphur is a shade firmer. Aniline oil and salt have relapsed again into a quiet state. Nitrate of soda dearer at 8s. 9d. per cwt. For miscellaneous chemicals the demand generally continues quiet, and prices are below the average.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 7d., Middlesbrough 35s. 9d. cash, and hematite 43s. 4½d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £40. to £40. 5s. cash, and £40. 6s. 3d. to £40. 11s. 3d. three months. Tin, firm: Straits closed at £66. 15s. to £67. 5s. cash, and £67. 2s. 6d. to £67. 12s. 6d. three months; Australian, £67. 17s. 6d.; English ingots, £70. Lead, steady: Spanish, £9. 17s. 6d.; English, £10. to £10. 2s. 6d. Silesian spelter, ordinary, £14. 17s. 6d. to £15. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 9s. 6d. Copper shares, dull: Cape, 1½ to 1½; Copiapo, 1½ to 1½; Libiola, 3¼ to 3¼; Mason and Barry, 1¼ to 1¼; Rio Tinto, 14½ to 14½; Tharsis, 4¾ to 5.

WOLVERHAMPTON, WEDNESDAY.—The market opened dull, with pig iron rather lower than a week ago, but with manufactured iron maintained. It closed with greater confidence, owing to improved news from the North, furnaces and mills being moderately occupied. Lincoln pig iron quoted 41s. nett; Northampton, 40s.; and Derbyshire, 40s. to 41s. Staffordshire hot air, 55s. upwards; medium sorts, 51s.; and cinder, 38s. Marked bars were £7. 10s., merchant bars £6. 10s., and common £5. 10s. Galvanised sheets: doubles about £9. 15s., and plain £6. 10s. Steel active.

GLASGOW, WEDNESDAY.—Market easier, with good business. Scotch done at 42s. 8d., 42s. 7d., and 42s. 7½d. cash, also at 42s. 9½d., 42s. 9d., and 42s. 9½d. one month; closing with buyers at 42s. 7d. cash, sellers ask ½d. higher. Cleveland done at 35s. 8½d. cash, also at 35s. 11d. one month; closing with buyers at 35s. 8d. cash, sellers ask 35s. 9d. Cumberland hematite closes with buyers at 43s. 4½d. cash, sellers ask 43s. 6d. Middlesbrough hematite closes with buyers at 42s. 6d. cash, sellers ask 42s. 7½d.

REPORT ON MANURE MATERIAL.

The market during the week has been quiet, with a tendency in favour of buyers. Quotation for 75/80% Florida rock is 8d. per unit,

c. i. f. to good United Kingdom ports, 1895 steamer shipment, but this is above buyers' ideas, and we do not hear of any business. The value of South Carolina River rock is about 6½d. per unit, of Peace River rock 6½d., and of 55/60% Algerian 6½d., in cargoes c. i. & i. There is nothing fresh to report in River Plate bones, closing value being about £4. 10s. for anything of moderate size. Crushed Kurrachee bones offer at £4. 12s. 6d. for shipment, and something under this price would do for Bombay bone meal. Common grinding bones are worth £4. 5s. to £4. 7s. 6d. per ton, according to quality and condition, ex quay Liverpool. Nitrate of soda, owing to arrivals at port of call, is easier, and as low as 8s. 7½d. per cwt. has been taken in that position: closing value is probably about 8s. 8d. per cwt. On spot the value of ordinary quality remains 8s. 9d. per cwt., and of refined 8s. 10½d.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Nov. 2nd, state:—

Chili charters for the second half of October are advised as 750 tons, which with 1,100 tons for the previous fortnight makes 1,850 tons for the month. The total since 31st December is 17,700 tons, against 17,550 tons same time last year. Exchange, 3¾d. Since our last issue G. m. b.'s have fluctuated between £41. cash and £41. 6s. 3d. three months, and £40. 8s. 9d. and £40. 15s. respectively, closing on the 31st October at £40. 16s. 3d. cash and £41. 2s. 6d. three months. Since then, the market though active as regards the amount of business, prices have declined, closing to-day with buyers at £40. 6s. 3d. cash and £40. 13s. 9d. three months. American quotation has declined to \$9.50 to \$9.60 per lb. for spot Lake copper. The total stocks in Liverpool, Swansea, London, and Havre are 49,038 tons, against 48,682 tons on the 16th ult., showing an increase of 356 tons for the fortnight, which with an increase for the previous fortnight of 398 tons, makes the increase for the month 754 tons. The stocks include about 1,550 tons of copper sold, but not yet delivered to smelters.

The visible supply for the fortnight is 52,789 tons, against 52,962 tons on the 17th October, showing a decrease of 173 tons. The month's figures show an increase of 725 tons. Refined and manufactured sorts are quiet. Quotations being: Tough cake, £43. 10s. to £43. 15s.; best select, £44. to £44. 5s.; Indian sheets, £47. 10s.; strong sheets, £51. 10s.; and yellow metal sheets, 4¾d. per lb.

In furnace material we have only to report a sale of 50 tons Mexican ore, 20 to 25 per cent., at 7s. 9d. per unit, which was made on October 20th.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Chemicals of the staple description are still marked only by weakness alone, the weakness being, if anything, more pronounced. Bleaching powder, caustic soda, and soda crystals are all fractionally lower in price, and buyers seem more and more inclined to wait, on the chance of a marked lowering of value as governing the contracts for the new year, when these are entered into.

Sulphate of ammonia has again surprised the market by its vagaries, having come down as suddenly as it went up, and as aimlessly it would appear. The market is quite flat to-day, with prompt price nominally down to about £12. 10s., and no business doing. Operators are quite at a loss to account for these manifestations, and are entirely uncertain as to the future.

Still the most active section here is that of the mineral oils and paraffins; for the most part ex-contracts, and therefore at fixed prices. Lubricating oils are more open for fluctuation, and being in good demand, tend to the rise, though no further rise has as yet taken place. Gravity, 840/850°, is in brisk inquiry for gas-making purposes, and fetches 2d. to 2½d. per gallon.

Chief prices current are:—Soda crystals 38s. to 39s. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 10s., 70/72° £8. 10s., 60/62° £7. 10s., and cream 60/62° £7. 7s. 6d., all nett, Liverpool; bleaching powder, £7. 7s. 6d., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¼d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £12. 10s., nominal for prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.;

paraffin spirit (naphtha), 4½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £3. 15s., to £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 4,508 bags cane and 11,148 bags beet.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil has been very quiet during the week, and sales have been very small. Prices are fairly steady, but buyers are not disposed to treat. Olive is much firmer, with a moderately good business doing. Prices have ruled £30. to £35. for Syrian, Messina, and Spanish sorts. Linseed, after being quiet, is now weaker in price, Liverpool makes being quoted 21s. 6d. to 22s. 6d. per cwt. in export casks. There is not much doing. Cottonseed continues cheap, but prices seem fairly steady now, at 19s. to 19s. 6d. per cwt. for Liverpool refined. Castor oil is steady, without material change in prices. Good seconds Calcutta is quoted 2½d. on spot, and first pressure French varies from 2½d. to 2¾d. per lb. Tallow is featureless, prices remaining nominally at 24s. 6d. to 25s. per cwt. for North American. Resin is not much inquired for, but prices are well maintained, with common at 3s. 9d., medium 4s. 3d. to 6s. 6d., and fine 7s. to 9s. per cwt. Spirits of turpentine is steady at 21s. 3d. per cwt., and in fair request. Petroleum is quiet, with American 4¼d. to 5½d., and Russian refined 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

TYNE CHEMICAL REPORT.

TUESDAY.

There is really no change to report in the chemical market, though there is about an average shipment. Prices generally are as under:—

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 5s. per ton, nett; do., 70°, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt firm at 9s. 6d. per ton, f.o.b. Tees.

COALS.—Market to-day is quiet and prices are a shade easier. The short supply of tonnage owing to recent stormy weather is somewhat affecting prices. Quotations are for best Northumbrian steam, 10s. and 10s. 6d. per ton; seconds, 9s. to 9s. 6d. per ton; small steam, 4s. 3d. to 4s. 6d. per ton; bunker coals lower, 6s. 9d. to 7s. per ton; best Durham, 7s. 6d. to 8s. per ton; coke, dull, 13s. to 14s. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The demand for oils shows some improvement, which will considerably improve even upon this when the new season's produce comes upon the market. The principal imports to date have been; Linseed 492,590 qrs.; against 379,694 qrs. Rapeseed, 115,907 qrs.; against 58,369 qrs. Cottonseed, 138,907 tons; against 135,008 tons. Olive oil, 20,291 casks; against 8,436 casks. Rape oil, 6,768 casks; against 6,174 casks. Tallow, 24,675 cwt.; against 32,362 cwt. Bones, 7,258 tons; against 3,596 tons. Turpentine, 16,193 brls.; against 14,608 brls. Tar, 19,655 brls.; against 11,679 brls. Linseed oil about 5s. per ton lower, closing with sellers at 19s. to 14d. values.

spot; November-December, 19s. 7½d. to 19s. 6d.; and January-April, 19s. 6d. to 19s. 4½d. May-August offer at 19s.; boiled and refined ditto from £1. to £2. per ton extra. Casks, 17s. 6d.; and barrels, 25s. per ton, extra. Export for the week, 860 cwt. Refined cotton oil about 7s. 6d. per ton lower. Spot is quoted 17s. 1½d. to 17s., and November-April, 16s. 10½d. to 16s. 9d. Export of refined for the week, 2,880 cwt. Rapeseed oil remains flat. "Vegaline," the new vegetable butter, white and neutral, £30. per ton. Castor oil first pressure from 2¼d. per lb. Turpentine, 21s. 9d. per cwt. Olive oil continues in good request at late prices. Soft soap, 14s. 6d. per cwt. Pine oil, £6. 5s. per ton. Cod oil from £16 to £19. per ton. Sod oil moving off better.

CAKES.—Linseed cakes firm: 95% pure, £6. 12s. 6d.; Russians, £6. 5s. to £6. 15s.; oil-kes, £5. 15s. Cottoncakes scarce, and likely to be for some time. Prices firmer. Best makes, £4. 2s. 6d. spot; and £3. 17s. 6d. December-April; seconds, 2s. 6d. to 5s. per ton less. Rape cakes: East India, £3. 17s. 6d.; Black Sea, £2. 17s. 6d.; feeding cakes, £4. 10s.

PAINTS.—The present open weather has stimulated a few orders. Dry Colours: Venetian red, £3. 15s. per ton. Oxide of iron from £7. to £18. per ton. Yellow ochre, £3. 15s. per ton. Mineral black, £3. 15s. per ton. Blue black, £4. per ton. White and red leads unchanged. Black varnish for iron work, £5 10s. per ton. Putty, £6. per ton. Ready mixed paints from £26. per ton.

New Companies.

Brocknell, Turner, and Sons, Limited.—CAPITAL £12,000., in £5. shares. This company has been formed to acquire the business of the late B. Turner, and to trade as tallow and wax chandlers and dealers in soap, oil, etc. The subscribers to the memorandum of Association, are: B. B. Turner, Stock Exchange, E.C.; H. J. Turner, 31, Haymarket, S.W., chartered accountant; P. D. Turner, 95, Cromwell-road, S.W., medical doctor; H. R. Robertson, 9, Elsworth-terrace, Primrose Hill, artist; T. Watt, 63, Tulse Hill, S.W., merchant; J. L. Turner, 159, Cromwell-road, S.W., widow; T. B. Miller, 12, Saville-row, W., solicitor.

San Patricio United Nitrate Company, Limited.—CAPITAL £150,000., in shares of £1. each. This company has been formed to acquire nitrate grounds and an *officina* and works in the Province of Tarapaca, Chili. The subscribers to the memorandum of Association are: William Henry Maguire, 54, Leconfield-road, Canonbury, clerk; G. C. Bradley, 4, Arica-road, Brockley, S.E., clerk; F. J. Warwick, 56, Barnby-street, West Ham, clerk; J. S. Coleman, 48, Myddleton-square, E.C., land agent; J. A. Scrivener, 20, Bucklersbury, E.C., secretary; W. F. Howard, 56, Birkbeck-road, Tottenham, N., clerk; H. J. Fronings, 86, St. John's-road, N., accountant.

Compagnie General de Petroles, etc., Limited.—CAPITAL £80,000., in 20,000 shares of £1., 8,000 of £5., and the rest £20. This company has been formed to acquire certain lands in Peru. The subscribers to the memorandum of association are: T. Greenhill, 124, Haverstock Hill, N.W., solicitor's managing clerk; J. M. McEwen, 37, Walbrook, E.C., secretary; E. Bayley, 37, Walbrook, E.C., merchant; R. Castletine, 31, Campden Buildings, N.W., solicitor; W. H.

Stanford, 37, Walbrook, E.C., solicitor's clerk; R. J. G. Chaldecott, 68, Cornwall-road, Bayswater, insurance agent; T. J. Ashwin, 18, Benthall-road, N., gent.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Soft Soap. M. Perls. 20,158. October 22.
Manufacture of Chromates. W. L. Wise. 20,168. October 22.
Manufacture of Manganates and Stannates. W. L. Wise. 20,169. October 22.
Improvement in Distilling Apparatus. O. Perrier. 20,175. October 22.
Composition for Improving Petroleum. R. Schewe and F. Messedat. 20,178. October 22.
Improvements in Regenerative Gas Furnaces. J. Heaton and G. H. Holden. 20,197. October 23.
Drying Air for Blast Furnaces, &c. J. Johnson. 20,207. October 23.
Improved Metallic Alloy. D. W. Sugg. 20,247. October 23.
Manufacture of Paint or Varnish. J. Armstrong. 20,250. October 23.
Electrolytic Apparatus for Decomposing Metallic Salts. C. Kellner. 20,259. October 23.
Smoke Consuming Hopper-Fed Fireplaces. G. W. Kraft. 20,260. October 23.
Smokeless Explosives. B. Thieme. 20,281. October 23.
Improved Filter. R. W. Hartley. 20,309. October 24.
Smoke Consumer. W. Bracewell. 20,331. October 24.
Heating and Purifying Boiler Feed-Water. J. E. Carroll. 20,351. October 24.
Electrodeposition of Aluminium and its Alloys. P. Marino. 20,354. October 24.
Recovering Zinc from Galvanised Scrap, &c. W. S. Rawson and R. Heathfield. 20,365. October 24.
Production of Zinc Pigments. J. P. Lacy and A. J. Ash. 20,373. October 24.
Manufacture of Asphalte from Petroleum. F. X. Byerley. 20,375. October 24.
Fuel Briquettes. R. Fegan. 20,414. October 25.
Process for the Combustion of Soot. W. Michalk. 20,447. October 25.
Manufacture of Artificial Musk. C. A. Abel. 20,521. October 26.
Covering Walls with Glass or Glass-Faced Materials. The Ceralite Syndicate, Ltd. E. T. Hall and J. Breeze. 20,540. October 26.
Disinfecting Compounds. C. Gates. 20,556. October 27.
Process for Reducing Aluminium. J. C. Fell. 20,615. October 27.
Manufacture of Carbonate of Soda. P. Bateson and E. Knowles Muspratt. 20,662. October 27.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

E. ATKINSON and H. MALLINSON, Huddersfield, logwood, &c., grinders, under the style of Atkinson and Co.
T. WHITTLE and W. WHITTLE, tanners and curriers, Manchester, under the style of Thomas and William Whittle.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.

NELSON, THOMAS, Ulverston, artificial manure agent.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending October 27th.

Acetate of Lime—
U. States, 1,523 pkgs. R. & J. Garraway

Acetone—
Holland, 2 pkgs. Beresford & Co.

Alkali—
Belgium, 200 c. Arnati & Harrison
France, 220 "

Ammonium Chloride—
Holland, 38 pkgs. H. Lorenz

Ammonium Sulphate—
Holland, 29 pkgs. H. Wallace & Co.

Anthracene—
Holland, 328 pkgs. Burt, Boulton & Co.

Antimony—
Sydney, 35 t. Vivian, Younger & Co.

Antimony Ore—
N. Zealand, 23 t. Sanderson, Murray & Co.

Portugal, 50 J. Bamber
A. Turkey, 6 French & Smith
Sydney, 34 H. Bath & Son
France, 3 c. H. Johnson & Sons

Asbestos—
Holland, £51 G. Rahn & Co.
N. Russia, £1,500 Bailey & Leatham
Canada, £900 C. S. Lovell
U. States, 900 Deering & Robottom

Barium Chloride—
Germany, 24 pkgs. Petri Brs.

Barytes—
Belgium, 57 cks. Burrell & Co.
" 66 J. L. Lyon & Co.
" 325 R. Bew
" 200 bgs. Leach & Co.
Holland, 137 cks. Magee, Taylor & Co.
Belgium, 268 pkgs. W. Harrison & Co.

Camphor—
Germany, 2 pkgs. T. H. Lee
" 1 L. & I. D. Jt. Co.

Caoutchouc—
Madagascar, 228 c. Procter Brs.
Zanzibar, 24 L. & I. D. Jt. Co.
Cape, 54
Holland, 1 Lewis & Peat

Castor Oil—
Italy, 5 cs. Potter & Clarke

Caustic Potash—
Belgium, 53 c. Petri Brs.
France, 40 "

Chemicals (otherwise undescribed)
Holland, £6 G. Rahn & Co.
" 10 pkgs. L. C. & D. Rly.
" 1 Philipps & Graves
" 220 A. & M. Zimmermann

" £10 Beresford & Co.
Belgium, 10 pkgs. O. Scholzig

Germany, 110 T. H. Lee
" 50 A. & M. Zimmermann

" £8. 12 L. & I. D. Jt. Co.
" 10 Brit. Anti-fouling Paint Co.
" 47 W. G. Blagden

Citric Acid—
France, 2 pkgs. B. & F. Wf. Co.

Cream of Tartar—
Spain, 5 pkgs. C. Christophersen & Co.

Holland, 5 B. & F. Wf. Co.

" 17 Kirkpatrick & Co.
France, 5 F. C. Devon & Co.

" 10 W. C. Bacon & Co.
" 5 M. Ashby, Ltd.

" 12 B. & F. Wf. Co.
" 2 Ross & Deering
" 3 G. Ward & Sons

Dyestuffs—

Annatto
France, 7 pkgs. B. & F. Wf. Co.
Beresford & Co.

Cochineal
Canaries, 21 pkgs. W. M. Smith
& Sons
13 Swanson & Co.

Extracts
Denmark, 26 pkgs. Sorenson & Co.
Germany, 40 Fisher, King & Co.
France, 255 L. J. Levinstein
& Sons

Fustic
E. Indies, 16 t. Belize Estate Co.
Indigo
E. Indies, 43 chs. R. von Glehn
& Sons
3 Stansbury & Co.

Logwood
Laguna, 25 t. Skillbeck Bros.
B. Honduras, 203 t. W. Shelcott
151 A. Everingham
& Co.

Madder
Holland, 1 pkge. J. Barber & Co.
Myrabolams
E. Indies, 1,351 pkgs. A. Hagan

Saffron
Spain, 1 pkge. J. Knill & Co.
Tanner's Bark
Natal, 116 t. A. & W. Nesbitt
Adelaide, 78 Beresford & Co.
N. Russia, 10 W. F. Malcolm & Co.

Turmeric
E. Indies, 118 pkgs. L. & I. D. Jt. Co.
1,700 H. A. Litchfield
& Co.

Valonia
A. Turkey, 51 t. A. & W. Nesbitt

Farina—
Germany, 5 pkgs. Pickford & Co.
50 Dunlop Bros.
Holland, 100 Seaward Bros.
400 C. Tennant, Sons,
& Co.

Glucose—
Germany, 50 pkgs. 50 c. Biddell Bros.
70 70 c. Andersen,
Becker & Co.
U. States, 20 120 Page, Son,
& Co.

" 500 500 Beck & Pollitzer
1,000 1,000 Thames S. T.
& L. Co. Ltd.
200 1,100 R. G. Hall
& Co.

" 200 1,150 T. M. Duche
& Sons

Lead Acetate—
Germany, 32 pkgs. F. Boshm

Magnesia—
Holland, 5 pkgs. A. & M.
Zimmermann

Manganese—
Germany, 2 t. Drolenvaux &
Bremmer

Manure—
France, 30 t. J. Burnett & Sons
U. States, 11 Brown & Elmslie
E. Indies, 150 A. Hunter & Co.
Germany, 14 McDougall &
Bonthon

" 197 Odum's Chemical
Manure Co.

Methyl Alcohol—
Germany, 4 dms. Langstaff, Ehren-
berg & Co.

Mica—
U. States, 690 W. M. Smith & Sons
Adelaide, 35
E. Indies, 270

Ochre—
France, 140 cks. W. Harrison & Co.
Holland, 8 pkgs. Philipps & Graves

Oxalic Acid—
Holland, 3 pkgs. Beresford & Co.

Paraffin Wax—
U. States, 33 brls. Privite & Co.

Pitch—
Sweden, 200 cks. Watts & Co.
U. States, 72 F. Simpson

Plumbago—
Germany, 88 cks. B. Gallaway
Ceylon, 70 brls. Doulton & Co.
451 32 cks. J. Thredder,
Son, & Co.

Potash—
Canada, 94 c. Charles & Fox
Potassium Bicarbonate—
Holland, 6 cks. A. & M. Zimmer-
mann

Potassium Carbonate—

France, 58 c. Petri Bros.
Germany, 100 J. A. Reid
102 F. Boehm
40 C. Lamb & Co.
M. D. Co.

Potassium Oxymuriate—
Sweden, 100 pkgs. G. Boor & Co.

Potassium Prussiate—
Holland, 1 pkge. J. Smidt
Germany, 5 pkgs. F. Boehm

Quicksilver—
Spain, 112 btl. L. & I. D. Jt. Co.

Rosin—
Holland, 6 brls. Philipps & Graves
U. States, 500 H. Hill & Sons

Saltpetre—
Germany, 4 cks. Petri Bros.
149 P. Hecker & Co.
42 J. Hall, jun., & Son
E. Indies, 698 bgs. A. Hunter & Co.
Germany, 48 cks. Brown & Elmslie

Silica—
Germany, 4,300 A. Haacke & Co.

Sodium Acetate—
France, 15 pkgs. H. Lorenz

Starch—
Belgium, 170 pkgs. T. H. Lee
368 F. Claydon & Co.
48 F. Rosenthal & Co.
130 Leach & Co.
Germany, 1,840 Horne & Co.
Holland, 236 Little & Johnston
100 Philipps & Graves
40 G. Rahn & Co.
U. States, 1,225 Oswego Co.

Stearine—
France, 115 bgs. Williams, Torrey,
& Co., Ltd.
Belgium, 197 cks. H. Hill & Sons
France, 50 bgs. "

Sulphur—
France, 33 pkgs. E. W. Carling
& Co.

Talc—
E. Indies, 1,791 Ross & Deering

Tallow and Stearine—
Belgium, 30 cks. T. H. Lee

Tartaric Acid—
Holland, 44 pkgs. B. & F. Wf. Co.
France, 10
Holland, 20 Kirkpatrick & Co.

Turpentine—
Savannah, 2,627 brls. Prod. Brokers Co.,
Ltd.
N. Russia, 53 cks. E. Tuteur

Ultramarine—
Holland, 6 cs. Haeffner, Hilpert,
& Co.
20 cks. Hernu, Peron,
& Co.

Germany, 62 G. Rahn & Co.
Steinhoff, Sons,
& Co.
Belgium, 20 cks. H. Kohnstamm

Varnish—
France, 14 pkgs. Flageolet & Co.
U. States, 12 Beck & Pollitzer

Verdigris—
France, 2 pkgs. B. & F. Wf. Co.

Vermilion—
Germany, 1 pkge. Philipps & Graves

White Lead—
Holland, 5 cks. A. Zumbeck & Co.
France, 20 J. Watts & Sons
Holland, 32 Burrell & Co.
38 Spies Bros & Co.

Wood Pulp—
Germany, 20 pkgs. Henderson, Craig,
& Co.
98 W. Friedlander
242 H. C. Everett
204 C. S. Lovell
Holland, 162

" 4 Hernu, Peron, & Co.
1,304 E. J. & W. Goldsmith
Norway, 80 W. G. Taylor & Co.
500 L. Knoblauch
200 C. Christophersen
& Co.

" 100 W. H. Mitchell
800 Moreton Cox Bros.
Denmark, 280 G. F. Green & Co.
N. Russia, 21 S. C. Dk. Co.

Zinc Oxide—
Holland, 25 brls. M. Ashby, Ltd.
50 cks. J. Matton
Germany, 5 Putz & Co.
U. States, 100 M. Ashby, Ltd.

LIVERPOOL.

Week ending October 25th.

Acetic Acid—
Rotterdam, 10 bins.

Acid—
Antwerp, 1 ck.

Antimony—
Antofagasta, 407 bgs. Kleinwort, Sons,
& Co.
150 299 sks.
136 Aillon, Aramayo,
& Co.
135 F. Huth & Co.

Antimony Ore—
Mollendo, 73 sks. J. Trizold
Antofagasta, 248 H. R. Merton
& Co.

Barytes—
Antwerp, 400 bgs.
Rotterdam, 22 cks.
Antwerp, 50

Boracic Acid—
Leghorn, 12 cks. Pickford & Co.

Boracite—
Panderma, 500 t. The Borax Co.

Borate of Lime—
Antofagasta, 201 sks. Widenham,
Broicher
2,999 bgs.

Borax—
Mollendo, 1,275 sks. Brownells & Co.

Caoutchouc—
Havre, 2 pkgs. 32 cks. Cunard S. S.
Co., Ltd.

Castor Oil—
Calcutta, 250 cs. Carruthers, Son,
& Co.
Leghorn, 5
274 6 brls. J. J. Mack
& Son
12 Belfast S. S. Co.
227 293 cks.

Caustic Soda—
New York, 125 dms. J. P. Brunner
& Co.

Chloride of Lime—
Rouen, 78 bgs. R. J. Francis
& Co.

Colours—
Hamburg, 80 cks.

Copper Chloride—
Rotterdam, 2 cks.

Cream of Tartar—
Barcelona, 5 cks.

Dyestuffs—
Argols
Oporto, 22 cks. German Bank of
London

Extracts
Antwerp, 50 cks.
Bordeaux, 75
New York, 8 brls.
Philadelphia, 40 250 bxs. 240 pkgs.
Marseilles, 10 cks. J. Kenyon & Co.
200

Fustic
Trieste, qty. A. Cross & Co.
Parnahyba, qty. R. Singlehurst & Co.
Singapore, 3,584 bls. R. & J.
Henderson

Madder
Marseilles, 1 ck. P. Behrends
Myrabolams
Bombay, 3,317 bgs. D. Sassoon
& Co.
3,000 R. & J. Henderson
620

Orchella
Lisbon, 97 bgs. 18 bls. A. Barbosa & Co.

Shumac
Bordeaux, 90 bls.
Palermo, 250 1,350 bgs.
Valonia
Smyrna, 15 t.

Farina—
Antwerp, 20 bgs.
Fiume, 100

Glucose—
New York, 650 brls.
Philadelphia, 200
New York, 1 J. Teesdale & Co.

Lead Acetate—
Rouen, 26 cks. R. J. Francis
& Co.

Manganese Ore—

Kobe, 149 t. 400 bgs.
Vizagapatam, 498 Darwen & Mostyn
Iron Co.

Manure—
Poti, 2,100
Malta, 24 cks.

Ochre—
Rouen, 203 cks. Co-op. W'sale
Society, Ltd.

Marseilles, 20
Paint—
Boston, 40 cs.
Marseilles, 21 5 cks. Collet
Montreal, 12 Wingate &
Johnston

Paraffin Scale—
Philadelphia, 470 brls. 20 cs.

Phosphate—
Montreal, 131 t.
Antwerp, 275

Potash—
New York, 5 brls. M. Bell
Rouen, 58 cks. Co-op. W'sale
Society, Ltd.

Potassium Carbonate—
Hamburg, 40 cks.

Pumice Stone—
Messina, 20 cks.
Marseilles, 1 brl. J. Thompson
& Co.

Pyrites—
Huelva, 2,967 t. Matheson & Co.

Rosin—
New York, 250 brls.
Boston, 30

Saltpetre—
Calcutta, 791 bgs.
Hamburg, 150 brls. 130 kgs.

Silver Sulphide—
Antofagasta, 3 sks. Brownells & Co.

Soap—
Boston, 10 brls.
Genoa, 20 cs.
Naples, 197 P. Behrends
Philadelphia, 5 1,000 bxs. 75 cts.
Marseilles, 21 40

Sodium Acetate—
Rouen, 9 cks. R. J. Francis
& Co.

Sodium Bichromate—
Hamburg, 27 cks.

Sodium Nitrate—
Iquique, 4,580 bgs.

Sodium Silicate—
Rotterdam, 1 ck.

Starch—
Antwerp, 1,460 cs. J. T. Fletcher
& Co.

" 294
Rotterdam, 190

Stearine—
New York, 5 hds.
Antwerp, 13 bgs. J. T. Fletcher
& Co.

" 51 60 cs.
Sulphur—
Catania, 83 brls.

Sulphur Ore—
Huelva, 1,420 t. Matheson & Co.

Tallow—
Baltimore, 23 brls. 500 tcs.

Tartar—
Naples, 2 cks.
Bordeaux, 4
Naples, 3 R. Vowles

Tartaric Acid—
Rotterdam, 9 cks.
Marseilles, 18

Ultramarine—
Rotterdam, 4 cks. 35 cs.

Varnish—
Boston, 3 brls. 31 bxs. W. H. Staynes
& Smith

Waste Salt—
Hamburg, 3,621 bgs.

White Lead—
Antwerp, 22 cks.
Rotterdam, 39

Wood Pulp—
Sundsva, 4,137 bls.
Montreal, 4,300 bds. A. Rice & Co.
Sannesund, 3,355 bls. 70 lds.
Rotterdam, 108

Zinc Ashes—
Rouen, 23 cks. Co-op. W'sale
Society, Ltd.

Zinc Oxide—
New York, 100 brls.
Antwerp, 22
Zinc White—
Rotterdam, 50 cks.

MANCHESTER.*Week ending October 27th.*

Alumina Sulphate—
Rotterdam, 68 cks.
Ammonium Acetate—
Rotterdam, 3 bls.
Aniline Colours—
Hamburg, 11 cks.
Aniline Salts—
Rotterdam, 4 cks.
Carbonic Acid—
Rotterdam, 20 tubes.
Cellulose—
Hamburg, 503 bls.
Chemicals (otherwise undes.)—
Rouen, 20 cks. 1 cs.
Rotterdam, 4
Chrome Alum—
Rotterdam, 14 cks.
Colours—
Rotterdam, 100 brls. 7 bxs. 113 cks.
Paris, 31 9 cks. Simpson.
Hamburg, 8 4 brls. Howden, & Co.
Cream of Tartar—
Rotterdam, 39 cks.
Farina—
Rotterdam, 500 bgs.
Hamburg, 559
Glucose—
Hamburg, 60 cks.
Litharge—
Rotterdam, 3 cks.
Oxalic Acid—
Rotterdam, 21 cks.
Potash—
Antwerp, 21 dms.
Hamburg, 12 cks.
Potassium Sulphate—
Rotterdam, 100 cks.
Sodium Phosphate—
Rotterdam, 4 cks.
Starch—
Antwerp, 60 cs.
Hamburg, 76 2 cks. 3 bgs.
Tartaric Acid—
Rotterdam, 18 cks.
Tin Oxalate—
Rotterdam, 6 brls.
Tin Perchloride—
Antwerp, 2 cks.
Waste Salt—
Hamburg, 203 bgs. qty.
Wood Pulp—
Hamburg, 1,040 bls.
Zinc Ashes—
Antwerp, 9 brls.
Zinc Oxide—
Rotterdam, 50 brls.
Zinc White—
Rotterdam, 10 cks.

HULL.*Week ending October 27th.*

Acetic Acid—
Rotterdam, 9 blns. W. & C. L. Ringrose
Albumen—
Hamburg, 1 ck. Bailey & Leatham
Aniline—
Rotterdam, 2 cks. W. & C. L. Ringrose
Aniline Colours—
Rotterdam, 1 kg. Hutchinson & Son
Asbestos—
Genoa, 29 pkgs.
Barytes—
Rotterdam, 119 cks. Hutchinson & Son
Bremen, 20
Rotterdam, 100 bgs. W. & C. L. Ringrose

Bog Ore—
Dordt, 250 t.
Castor Oil—
Leghorn, 25 cs. Wilson Sons, & Co., Ltd.
" 5
Chemicals (otherwise undescribed)
Stettin, 20 cks. Wilson, Sons, & Co., Ltd.
Antwerp, 45 pkgs. " "
Hamburg, 98 5 cs. " "
Cod Oil—
Drontheim, 8 brls. Wilson, Sons, & Co., Ltd.
Christiansund, 29 pkgs. " "
Aalesund, 177 " "
Bergen, 128 " "
Colours—
Rotterdam, 5 cs. 124 pkgs. 57 cks. W. & C. L. Ringrose
" 2 5 cks. 22 brls. 5 bxs. Hutchinson & Son
Antwerp, 38 Bailey & Leatham
" 19 pkgs. Wilson, Sons, & Co., Ltd.
Hamburg, 7 G. Malcolm & Son
Antwerp, 1 cs.
Cottonseed Oil—
New York, 160 brls. Wilson, Sons, & Co., Ltd.
Cryolite—
Copenhagen, 1 ck. Wilson, Sons, & Co., Ltd.
Dyestuffs—
Alizarine
Rotterdam, 26 pkgs. 7 cks. W. & C. L. Ringrose
Farina—
Stettin, 300 bgs. Wilson, Sons, & Co., Ltd.
Harlingen, 600
Ghent, 160 bxs. " "
Glucose—
Stettin, 300 bgs.
New York, 260 brls.
Kaolin—
Rotterdam, 20 cks. W. & C. L. Ringrose
Manure—
Ghent, 203 t.
Minium—
Rotterdam, 35 cks. Hutchinson & Son
Ochre—
Marseilles, 9 cks. Wilson, Sons, & Co., Ltd.
" 36
Oxalic Acid—
Rotterdam, 6 cks. Hutchinson & Son
Paint—
Drontheim, 4 bxs. Wilson, Sons, & Co., Ltd.
Pitch—
Rotterdam, 1 ck. W. & C. L. Ringrose
Hamburg, 120 brls.
Potash—
Antwerp, 4 dms. Bailey & Leatham
Hamburg, 16 cks. " "
Pumice Stone—
Leghorn, 90 pkgs. Wilson Sons, & Co., Ltd.
Hamburg, 10 cks. Wilson, Sons, & Co., Ltd.
" 2 cs. " "
Salt—
Hamburg, 20 t.
Sodium Nitrate—
Hamburg, 200 bgs. Wilson, Sons, & Co., Ltd.
Starch—
Bremen, 2,071 cs. Veltmann & Co.
Stearine—
Rotterdam, 25 bls. Wilson, Sons, & Co., Ltd.
Antwerp, 13 bgs.
Tartaric Acid—
Rotterdam, 2 cks. W. & C. L. Ringrose
Ultramarine—
Rotterdam, 9 cks. Hutchinson & Son
" 2 W. & C. L. Ringrose

Varnish—
New York, 5 brls. Wilson, Sons, & Co., Ltd.
Waste Salt—
Hamburg, 100 bgs. Farley & Co.
White Lead—
Rotterdam, 59 cks. Hutchinson & Son
" 56 W. & C. L. Ringrose
Wood Pulp—
Hamburg, 12 bls. Bailey & Leatham
Abo, 40 J. Good & Sons
" 31 Furley & Co.
" 10 49 tcls.
Hango, 325 J. Good & Sons
Zinc Oxide—
Hamburg, 5 cks. Bailey & Leatham
Zinc White—
Rotterdam, 20 cks. W. & C. L. Ringrose

GLASGOW.*Week ending November 1st.*

Acetate of Lime—
New York, 188 bgs.
Aluminium Sulphate—
Rotterdam, 30 cks. J. Rankine & Son
Aniline Colours—
Hamburg, 3 cs.
Aniline Oil—
Rotterdam, 9 cks. J. Rankine & Son
Arachide Oil—
Rotterdam, 1 ck. J. Rankine & Son
" 3
Barytes—
Rotterdam, 45 cks. J. Rankine & Son
" 11 pkgs.
Barytes Sulphate—
Antwerp, 300 bgs.
Carbon Black—
Philadelphia, 50 brls.
Castor Oil—
Antwerp, 56 cks.
Colours—
Rotterdam, 14 cks. 12 cs. J. Rankine & Son
" 43 pkgs.
Dextrine—
Danzig, 100 bgs.
Dyestuffs—
Alizarine
Rotterdam, 2 cs. 14 cks. J. Rankine & Son
" 303 pkgs.
Extracts
Baltimore, 50 brls.
New York, 60 bxs.
Nantes, 100 cks.
Bordeaux, 20
Indigo
Rotterdam, 11 chts.
Logwood
Monte Christo, 400 t. M'Arthur, Scott, & Co.
Farina—
Hamburg, 10 bgs.
Glucose—
New York, 209 brls.
Philadelphia, 200
Guano—
Tonsberg, 383 bgs.
Lead Acetate—
Rouen, 12 cks.
Paint—
New York, 2 brls. 1 cs.
Phosphate Rock—
Baltimore, 2 brls.
Pyrites—
Huelva, 1,699 t. Tharsis Co.
" 845
Rosin—
New York, 500 brls.
Soap—
New York, 25 bxs.
Philadelphia, 350 39 c.
Sodium Bicarbonate—
Rotterdam, 13 cks. J. Rankine & Son
Tallow—
New York, 255 tcs.

Tartar—
Oporto, 10 cks.
Bordeaux, 27
Tartar Emetic—
Hamburg, 4 cks.
Varnish—
New York, 55 cs. 3 brls.
Waste Salt—
Hamburg, 1,283 bgs.
White Lead—
Rotterdam, 19 cks.
Wood Pulp—
Montreal, 690 bdls.
Chis iania, 3,024 bls.
Zinc Ashes—
Nantes, 15 cks.
Zinc Oxide—
New York, 100 brls.
Zinc White—
Rotterdam, 150 cks.

TYNE.*Week ending October 27th.*

Alum—
Hamburg, 35 cks. Tyne S. S. Co.
Aluminium—
Antwerp, 1 cs. Tyne S. S. Co.
Barytes—
Rotterdam, 13 cks. Tyne S. S. Co.
Colours—
Hamburg, 5 cs. Tyne S. S. Co.
Antwerp, 1 brl. " "
Cryolite—
Copenhagen, 1 ck.
Glucose—
New York, 150 brls. Furness, Withy, & Co.
Kieselguhr—
Bergen, 95 bgs.
Limestone—
Antwerp, 3 crts. Tyne S. S. Co.
Manganese—
Amsterdam, 1 cs. Wm. Swanston & Sons
Phosphate—
Ghent, 150 t.
Rosin—
New York, 100 brls. Furness, Withy, & Co.
Salt—
Hamburg, 500 t. Clephans & Wiencke
Soda—
Rotterdam, 16 cks. Tyne S. S. Co.
Sodium Nitrate—
Taital, 1,100 t.
Starch—
Ghent, 16 cs. Tyne S. S. Co.
Rotterdam, 64 " "
Wood Pulp—
Laurvig, 60 bls.

GOOLE.*Week ending October 24th.*

Acetic Acid—
Rotterdam, 4 cks.
Alkali—
Hamburg, 10 cks.
Calais, 5
Aniline Dyes—
Hamburg, 3 cks. 1 cs.
Antimony—
Boulogne, 2 cks.
Dyestuffs—
Alizarine
Rotterdam, 91 pkgs.
Extracts
Rouen, 20 cks.
Logwood
Belize, 440 t.
Dyestuffs (otherwise undescribed)
Rotterdam, 235 pkgs. 3 cks.
Boulogne, 5 30 16 cs.
Ghent, 4 3
Farina—
Hamburg, 800 bgs.
Delfsryhl, 300
Glucose—
Dunkirk, 300 bgs.
Potash—
Rotterdam, 19 cks.
Dunkirk, 10
Calais, 27 dms.
Saltpetre—
Hamburg, 33 cks.
Rotterdam, 200 bgs.

Soda — Rotterdam, 2 cks.	GRIMSBY. Week ending October 27th.	Caoutchouc — Hamburg, 2 cs.	Hamburg, 37 pkgs.
Starch — Antwerp, 50 cs.	Barytes — Hamburg, 5 cks.	Coal Tar Dyes — Antwerp, 17 cks.	Colours — Hamburg, 6 pkgs. 5 cks.
Waste Salt — Hamburg, 1,349 bgs. 160 t.	Rotterdam, 2	Rotterdam, 4	Antwerp, 10 cs. 3
			Farina — Hamburg, 40 bgs.

EXPORTS OF CHEMICAL PRODUCTS

OF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.					
Week ending October 31st.					
Acids — Fochow, 5 cs.	£13	Naphtha Sydney, 3 cs.	£40	E. London, 550 cs.	4,700
Alum — Madras, 6 brls.	£6	Melbourne, 5	16	Cape Town, 550	
Aluminous Cake — Calcutta, 37 t.	£120	Naphthaline Hamburg, 6 cks.	£49	Pt. Elizabeth, 1,250	
Ammonia — Boston, 5 cs.	£13	Pitch Antwerp, 975 t.	£1,723	Sydney, 11 t. 12 c.	150
Sydney, 17	33	Salonica, 853	60 brls.	Soda Ash — Rio de Janeiro, 25 t. 18 c.	£106
Bombay, 10 14 c.	48	St. Nazaire, 195	333	Sodium Bicarbonate — Trinidad, 1 t.	£8
Ammonium Carbonate — Paris, 6 t. 8 c.	£219	Rotterdam, 8 cks.	20	Invercargill, 1	8
Dunkirk, 19	33	Pyridine Bases Amsterdam, 2 drs.	£57	Trinidad, 2 8 c.	18
Ammonium Chloride — Philadelphia, 5 t. 2 c.	£110	Tar St. Lucia, 10 brls.	£10	Barbadoes, 1 5	9
Sydney, 1 2	42	Madras, 150 cks.	80	Sodium Bisulphite — Melbourne, 6 cks.	10
Constantinople, 3 10	119	Algoa Bay, 223 pkgs.	11	Sodium Hyposulphite — Adelaide, 20 t. 4 c.	£111
Varna, 6	11	E. London, 130 dms.	7	Sodium Tartrate — Canada, 10 c.	£30
Trebizonde, 15	28	Tar Oil Gothenburg, 225 cks.	£160	Toronto, 1 t. 4	58
Bushire, 2 9	87	Copperas — Madras, 14 cks.	£8	Sulphur — M. Video, 1 t. 11 c.	£32
Bagdad, 2 10	94	Bagdad, 7 t.	20	Superphosphate — Auckland, 30 t.	£146
Ammonium Sulphate — Antwerp, 5 t.	£65	Copper Sulphate — Fremantle, 2 t. 13 c.	£44	Jersey, 65	230
Amorphous Phosphorus — Hiogo, 45 cs.	£573	Reval, 5 3	75	Tartaric Acid — Sydney, 1 t. 10 c.	£141
Anhydrous Ammonia — Cape Town, 2 cs.	£29	Sydney, 5 9	74	Adelaide, 1	94
Arsenic — Calcutta, 1 t.	£17	Cream of Tartar — Melbourne, 3 t.	£200	Cuba, 3 10 20 kgs.	427
Wellington, 1	16	Invercargill, 1	67	Kurrachee, 10	52
Barytes Sulphate — Adelaide, 9 cks.	£25	Sydney, 2	134		
Bisulphite of Lime — Cape Town, 1 t. 1 c.	£13	Disinfectants — Sydney, 10 pkgs. 4 cs.	£69	LIVERPOOL.	
Calcutta, 11 pkgs.	65	Hong Kong, 10	25	Week ending October 31st.	
Borax — Sydney, 6 t. 9 c.	£350	Calcutta, 1 t. 6 c.	12	Alum — Tripoli, 2 t. 16 c.	£18
Mannheim, 2 2 cks.	22	E. London, 2 cs.	19	Trebizonde, 4	28
Melbourne, 1	22	Shanghai, 6	30	Alexandria, 13	91
Calcic Sulphite — Cape Town, 6 cks.	£49	Bombay, 10 cks.	28	Montreal, 3 17 2 q.	25
Calcium Chloride — Canterbury, 3 t.	£10	Gypsum — Jersey, 5 t.	£10	Bombay, 14 12	85
Carbolic Acid — Algoa Bay, 2 cs.	£22	Hypophosphite of Lime — Philadelphia, 9 c	£163	Gibraltar, 19 2	5
Caustic Soda — Algoa Bay, 14 c.	£17	Magnesia — Santos, 7 c.	£11	B Ayres, 11 12	54
Philadelphia, 14 t. 10	133	Genoa, 14	26	Aluminous Cake — Montreal, 9 t. 18 c. 1 q.	£39
Melbourne, 2 9	54	Melbourne, 7	10	Aluminium — Gijon, 9 c.	
Natal, 16 2	218	Manure — Jamaica, 86 t.	£590	Ammonium Carbonate — Barcelona, 1 t.	3 q. £37
Canterbury, 9	12	Teneriffe, 4 1 c.	22	Bilbao, 1	36
Napier, 5 6	51	Bordeaux, 25	185	Maranham, 1 c.	3
Chemicals (otherwise undescribed) Barbadoes, 12 cks. 5 cs.	£24	Auckland, 51	185	Beyrou, 15	27
Cologne, 8 c.	12	Jersey, 88 1	506	Carril, 10	17
Yokohama, 12	12	Malaga, 29 13	239	Stettin, 1 2 2	21
E. London, 90 kgs. 10 cks.	44	Montreal, 5 4	45		
Terceira, 4 brls. 2	9	Cologne, 23	276	Ammonium Chloride — Smyrna, 6 c.	£11
Adelaide, 3 cs. 50 tcs.	50	Phosphorus — Sydney, 10 cs.	£100	Alexandria, 1 t.	37
Citric Acid — Melbourne, 2 t. 11 c. 20 kgs.	£444	Potash — Colombo, 9 c	£19	Volo, 14	26
Lisbon, 10	62	Potassium Bichromate — Madras, 6 cks.	£96	Bombay, 1 17	67
Hamburg, 10	64	Potassium Chlorate — Hiogo, 200 kgs.	£478	Bilbao, 6 18 3 q.	247
Toronto, 11	65	Gothenburg, 4	11	Rosario, 11	16
Bombay, 1	8	Bombay, 4 cs.	28	Galatz, 3	7
Amsterdam, 1 cs.	27	Potassium Cyanide — Rio de Janeiro, 6 c.	£50	Barcelona, 19	24
Madras, 1 cs.	7	Natal, 40 t. 10	4,130	Montreal, 1 7	31
Coal Products — Alizarine Bombay, 123 pkgs.	£415	Townsville, 2 11	220	Valparaiso, 2	3
St. Petersburg, 18 cs.	980	Potassium Iodide — Algoa Bay, 1 cs.	£29	Stettin, 1	146
Aniline Dyes Hamburg, 6 kgs.	£23	Saltpetre — Rio de Janeiro, 10 c.	£12	Ammonium Sulphate — Valencia, 100 t. 13 c.	£1,306
Aniline Oil New York, 15 dms.	£450	Sydney, 2 t.	46	Barcelona, 79 17 3 q.	1,113
Aniline Salts New York, 24 cks.	£150	Natal, 1 12	36	Genoa, 8 3	112
Anthracene Rotterdam, 44 cks.	£280	London, Ont., 1 11	40	Demerara, 98 19 2	1,327
Benzol Rotterdam, 6 cks. 11 drs. 25 pns.	£308	Vigo, 3 14	80	Antwerp, 20 1 2	280
Antwerp, 73 brls.	196	Gibraltar, 12 10	260	Alicante, 26 14 3	338
		Rio de Janeiro, 4 9	104	Las Palmas, 29 17	376
		Oporto, 3 14	77	Montreal, 10 5 2	165
		Melbourne, 1	22	Philadelphia, 25 8 3	328
		Sheep Dip — Natal, 200 dms.	£43	Cullera, 50 12 3	640
		Auckland, 16 c.	35	Rotterdam, 100 14	1,400
		Napier, 3 t. 1	135	Bordeaux, 5 2	70
		M. Video, 1 t. 6 c. 250 dms.	110	Antimony — Bombay, 2 cks.	
				Lisbon, 1	
				Arsenic — New York, 45 t. 15 c. 2 q.	£640
				Bombay, 100 kgs.	

Bleaching Powder—

Bilbao, 27 cks.	
Boston, 370	
Ghent, 72	
Montreal, 60	35 brls.
New York, 299	
Palermo, 80	
Passages, 14	
Philadelphia, 80	115 bgs.
San Sebastian, 58	
Shanghai, 6	
Cape Town, 80	bxs.

Boracic Acid—

Yokohama, 1 t. 15 c. 2 q.	£40
Borax — Alexandria, 1 t. 5 c.	£26
Rotterdam, 3 11	71
B. Ayres, 4	5
Montreal, 116 cks. 2	447
Galatz, 9	10
Oporto, 1 1	25
Barcelona, 6 10 3 q.	131
Piraeus, 5	5
Adelaide, 1 16 1	37 1/2
Toronto, 42	
New York, 50 cks.	225
Stettin, 1 12 1	35
Cuba, 6 2	7
Piraeus, 14	14

Calcium Chloride—

B. Ayres, 2 t. 12 c.	£6
Camphor — Iquitos, 1 cs.	
Caoutchouc — Rio de Janeiro, 1 cs.	
Santander, 3	
Carbolic Acid — New York, 5 cks.	£45
Italy, 5 c.	12
Rosario, 4 3 q.	6
Bombay, 6 dms.	
Rouen, 4 t. 16	231

Castor Oil—

Boston, 10 brls.	
Opobo, 5 cs.	
Caustic Potash — New York, 9 t. 5 c.	£260

Caustic Soda—

Alicante, 33 dms.	
Baltimore, 153	
Barcelona, 372	20 cks. 48 brls.
Beyrou, 14	
Bilbao, 30	
Boston, 125	
Brantford, 26	
Coquimbo, 10	
Galatz, 439	
Genoa, 200	
Gijon, 20	
Hamburg, 45	
Havana, 110	
Hong Kong, 50	
Ibrail, 32	
Leghorn, 50	
Macao, 2	
Melbourne, 15	2 bxs. 5 pkgs.
Messina, 75	
M. Video, 223	
Montreal, 981	
N. Orleans, 330	
New York, 325	35 cks. 244 brls.
Norokoping, 3 1/2 t.	
Odessa, 50	
Oporto, 58	
Palermo, 70	
Passages, 200	
Pernambuco, 69	
Quebec, 63	pkgs.
Rangoon, 118	
Rotterdam, 66	15 cks.
San Francisco, 400	10 bxs.
San Sebastian, 68	
Santander, 20	
Seville, 380	
Shanghai, 4	
Sydney, 125	
Talcahuano, 32	

Varnish—			
Calcutta,	1 bx.		
Colon,	1 cs.		
Genoa,			
Leghorn,	1	3 cks.	
Pissagua,			
Shanghai,	30	15 brls.	
Trinidad,			
Waste Salt—			
New York,	600 t.		
Whiting—			
St. Mary's,	5 cks.		
Wood Spirit—			
Calcutta,	20 dms.		
Zinc Chloride—			
Bordeaux,	5 t.	10 c.	3 q. £30
Bombay,	7	10	93
Zinc Oxide—			
Maranham,	5 brls.		

MANCHESTER.

Week ending November 1st.

Ammonium Chloride—			
Antwerp,	4 cks.		
Ammonium Sulphate—			
Barcelona,	420 bgs.		
Valencia,	198		
Aniline Colours—			
Rotterdam,	2 cks.		
Aniline Oil—			
Antwerp,	10 tins.		
Rotterdam,	4 dms.		
St. Petersburg,	26 cks.		
Aniline Salts—			
St. Petersburg,	9 pns.		
Bleaching Powder—			
Rio de Janeiro,	18 cs.		
Caustic Soda—			
Malaga,	151 dms.		
Rio de Janeiro,	4		
Chemicals (otherwise undescribed)			
Hamburg,	10 bxs.		
Rotterdam,	1 kg.		
Coal Tar Products (otherwise undescribed)			
St. Petersburg,	1 cs.	2 cks.	
Creosote—			
Rotterdam,	35 cks.		
Creosote Salts—			
Antwerp,	10 t.	3 c.	
Linseed Oil—			
Malta,	5 brls.		
Pitch—			
Treport,	21 t.	14 c.	
Soap—			
Gibraltar,	250 cs.		
Malta,	12 bxs.		
Sodium Bicarbonate—			
Barcelona,	150 kgs.		
Malaga,	35		
Tallow—			
Rotterdam,	25 cks.		
Turpentine—			
Malta,	1 brl.		

HULL.

Week ending October 27th.

Aluminium—			
St. Petersburg,	2 cs.		
Ammonium Sulphate—			
Stettin,	720 bgs.		
Bleaching Powder—			
Bombay,	34 cks.		
Danzig,	6		
Borax—			
Wasa,	2 cks.		
Caustic Soda—			
Harlingen,	17 cks.		
Trieste,	32 dms.		
Venice,	69		
Wasa,	335		
Chemicals (otherwise undescribed)			
Amsterdam,	10 cks.	12 pkgs.	
Antwerp,	4	1 cs.	
Bombay,	1,289		
Abo,	2		
Bari,		16	
Christiania,	4	56	
Danzig,		10	
Drontheim,		5	
Gothenburg,	4	39	15
Harlingen,	20		
Hamburg,	14	220	

Kurrachee,	128		
Libau,	10		
New York,	25		
Palermo,	21		
Rotterdam,	9	45	
Stockholm,		4	20
Stettin,	8 kgs.	1	2
Trieste,	8		
Wasa,	118	5	
Cottonseed Oil—			
Antwerp,	100 c.		
Bremen,	20		
Danzig,	18		
Drontheim,	50		
Hamburg,	798		
Rotterdam,	765		
Stockholm,	27		
Stettin,	34		
Trieste,	400		
Dyestuffs (otherwise undescribed)			
Antwerp,	80 bgs.		
Christiania,	3 cks.		
Gothenburg,	3	1 cs.	
Rotterdam,		1	
Rouen,	10		
Stettin,	230 bls.		
Lime—			
Christiania,	112 c.		
Linseed Oil—			
Antwerp,	3 c.		
Abo,	28		
Bremen,	168		
Bergen,	31		
Christiania,	586		
Christiansand,	28		
Drontheim,	130		
Gefle,	170		
Hamburg,	354		
Kurrachee,	39		
Wasa,	31		
Mineral White—			
Rotterdam,	100 bgs.		
Painters' Colours—			
Amsterdam,	4 cs.		
Antwerp,	196 cks.	2	1 pkg.
	14 dms.		
Bombay,	6	50	720
Abo,	1		
Bergen,		2	
Christiania,		16	
Christiansand,		44	
Danzig,	9		
Dunkirk,	1		
Gothenburg,	18	3	
Ghent,	14		
Gefle,	1		
Kurrachee,		2	20 dms.
Libau,		1	
New York,	10		
Rotterdam,	9	2	
Rouen,	1		
St. Petersburg,	12	35	
Stockholm,	3		2 pkgs.
Stettin,	16		
Trieste,	12		
Wasa,	2	14	
Pitch—			
Antwerp,	530 t.		
Abo,	23 cks.		
Christiania,		16 c.	
Soap—			
Antwerp,	4 cks.		
Bremen,	3 cs.		
Gothenburg,	1		
Stockholm,	20		
Tallow—			
Gothenburg,	10 cks.		
Rotterdam,	21		
Wasa,	464		
Tar—			
Amsterdam,	4 cks.		
Christiania,	1		
Hamburg,	7		
Rotterdam,	10		
Wasa,	60		
Turpentine—			
Bombay,	60 dms.		
Wasa,	13 cks.		
Varnish—			
Antwerp,	1 cs.		
Bombay,		132 dms.	
Bordeaux,		2 cks.	
Christiania,	1		
Gothenburg,	1		
Ghent,		1	
Harlingen,		1	1
Hamburg,		1	1
Kurrachee,	3		
St. Petersburg,	9		

GLASGOW.

Week ending November 1st

Ammonium Sulphate—			
Demerara,	23 t.	8 1/4 c.	£270
Bordeaux,	49	18 1/4 c.	630
Asbestos—			
Bombay,	5 t.	4 1/4 c.	£106
Bleaching Powder—			
Calcutta,	50 t.		£650
Boracic Acid—			
Japan,	1 t.		£33
Borax—			
Japan,	2 t.	19 1/2 c.	£59
Coal Products—			
Naphtha			
Bordeaux,	4 t.	3 1/2 c.	£65
Pitch			
Canada,			£241
Boston,	37 t.		100
Canada,	47	18 c.	106
Tar			
Canada,			£165
Boston,	59 t.	18 c.	140
Canada,	98	14	175
Tar Oil			
Hamburg,	2 dms.		£40
Dyestuffs—			
Logwood			
Boston,	2 t.	8 1/4 c.	£35
Sumac Extract			
Canada,	3 t.	16 1/4 c.	£61
Dyestuffs (otherwise undescribed)			
Hamburg,	10 bxs.	1 ck.	£18
Litharge—			
Antwerp,	3 t.	17 1/2 c.	£53
Magnesium Sulphate—			
Christiania,	10 t.		£35
Painters' Colours—			
Calcutta,			£192
Paraffin Wax—			
Stockholm,	1 t.		£39
Bilbao,	2	1 1/4 c.	60
Christiania,	1		32
Potassium Bichromate—			
Stockholm,	1 ck.		£16
Boston,	16 t.	13 1/4 c.	660
Antwerp,	9	2 1/4	564
Gothenburg,		10 1/2	20
Rosin—			
Calcutta,	5 t.	1 c.	£20
Rosin Oil—			
Rotterdam,	15 brls.		£30
Slag—			
Rotterdam,	301 t.		£105
Sodium Bichromate—			
Antwerp,	5 t.	18 c.	£145
Sodium Sulphate—			
Canada,	17 t.	5 1/4 c.	£42 11s.
Tallow—			
Stockholm,	2 t.		£42
Christiania,	1	4 1/4 c.	21
White Lead—			
Canada,	8 t.	3 1/2 c.	£139
Calcutta,			82
Seville,	3	2 1/4	45
Stockholm,	14 cks.		34

TYNE.

Week ending October 27th.

Alkali—			
St. Petersburg,	25 t.	3 c.	
Rotterdam,	1	7	
Amsterdam,	39	7	
Aluminous Cake—			
Amsterdam,		10 c.	
Antimony—			
Hamburg,	2 t.		
New York,	30		
Rotterdam,	3	13 c.	
St. Petersburg,	20		
Barium—			
New York,	4 t.	17 c.	
Bleaching Powder—			
Hamburg,	9 t.	15 c.	
Antwerp,	7	8	
Christiania,	2	18	
Odense,	23	18	
New York,	118	1	
Nakskov,	1	10	
Copenhagen,	22	4	
Rotterdam,	37	4	
Drontheim,	9	18	
Amsterdam,	25	19	
St. Petersburg,	81	11	
Libau,	25	3	

Caustic Soda—

Hamburg,	207 t.	16 c.
Antwerp,		15
New York,	252	2
Copenhagen,	13	1
Rotterdam,		12
Amsterdam,	9	17
St. Petersburg,	100	8
Colours—		
Antwerp,		1 c.
Lisbon,	25 cks.	
Litharge—		
Hamburg,		11 c
Antwerp,	2 t.	18
Christiania,	2	5
Magnesia—		
Hamburg,	2 t.	1 c.
Antwerp,		1
New York,	1	2
Oxalic Acid—		
St. Petersburg,	5 t.	3 c.
Libau,		1 ck.
Paint—		
Hamburg,		9 c.
Antwerp,	2 t.	5
Rotterdam,	1	
Amsterdam,		10
Soda—		
Hamburg,	27 t.	11 c.
Antwerp,	5	
Christiania,	28	1
New York,	108	3
Rotterdam,	21	14
Bergen,	10	
Amsterdam,	65	12
St. Petersburg,	10	4
Soda Ash—		
Hamburg,	1 t.	19
Bergen,	5	6
Lisbon,	3	4
Gothenburg,	74	3
Sodium Nitrate—		
Carthage,	8 t.	2 c
Sulphur—		
Christiania,	50 t.	
Gothenburg,	120	
Tallow—		
Rotterdam,	2 cs.	
Tar—		
Hamburg,	1 t.	2 c
Turpentine—		
Antwerp,		1/2
White Lead—		
New York,	10 t.	
Copenhagen,	3	1 c.

GOOLE.

Week ending October 24th.

Alkali—		30 dms.
Benzol—		
Boulogne,	48 cks.	
Chemicals (otherwise undescribed)		
Rotterdam,	150 cks.	
Coal Products (otherwise undescribed)		
Boulogne,	4 cks.	2 cs.

THE CHEMICAL TRADE JOURNAL AND OIL, PAINT and COLOUR REVIEW.

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SATURDAY, NOVEMBER 17, 1894.

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CURRENT TOPICS.

THE CYANIDE PATENT CASE.

THE judgment of Mr. Justice Romer in this important case has proved to be instructive, and, considering the mass of evidence put forward, is very concise and explicit. We have no intention of criticising his conclusions either favourably or adversely, as the decision is subject to appeal, and we are therefore not entitled to do so. His judgment, however, contains one or two incidental points which it will be interesting to note. He makes it clear that the patent of Rae in 1866 was in his opinion an anticipation of the Cassel Gold Company's patent, because he holds that the use of cyanide was the principal feature of the patent; the additional suggestion of using electricity as a means of facilitating the action in no way altering this fact. It is important that cognisance should be taken of his Lordship's distinction between auxiliaries and the main feature of the patent. He also shows what trifles the Patent Office accepts as ground for granting a patent. From his remarks on Simpson's patent in 1884, in which cyanide and a little ammonium carbonate was to be used, his Lordship appears to be of the opinion that Simpson's patent was not altogether sound. He suggests that the addition of a little carbonate of ammonia was mentioned because, in view of Rae's patent, Simpson was afraid to claim for the use of cyanide alone. His Lordship also makes a point of Mr. MacArthur's evidence, from which he deduces that there was no invention in the use of cyanide, as it was known by the plaintiffs to be a solvent for gold when they adopted it, and then, moreover, was of no commercial value till a method of recovering the gold from the cyanide solution was subsequently invented by the plaintiffs. There is a pregnant remark upon the expert evidence in the judgment, which shows only too clearly in what light his Lordship views a good deal of this kind of evidence. After hearing and reading all that had been adduced he says "in the conflict of testimony" he used his own judgment, which he was not only at liberty to do, but was in fact bound to do. It does not add to the dignity of the profession to have such remarks constantly passed by eminent justices. Differences of opinion on certain points among the scientific men are inevitable, but the wisdom of countenancing the special pleading which is often wrung out of experts is questionable. The point is one we should think the Institute of Chemistry might take up on behalf of its members, in preference to some of the less useful matters which are made the subject of Conference discussions. To come back to the cyanide case, however, though Mr. Justice Romer's decision is extremely lucid, we suppose its effect on the Rand mining companies will not be very apparent till after the decision of the Court of Appeal; as to reveal personal opinions by actions anticipatory of the decision of the Higher Court might be construed into contempt.

There is one point in particular in connection with this case which must not be lost sight of. His Lordship stated that the alleged patent of the plaintiff was not worked till the discovery of a process for recovering the gold from solution. This process was the subject of another patent taken out a year after the one which his Lordship has held to be invalid. This later patent was for the precipitation of the gold from the cyanide solution by means of zinc, and upon it the commercial success of the Company depended. In speaking of Mr. Justice Romer's judgment, therefore, it is important that the two patents should be kept quite distinct, as the patent of 1888 for precipitation is absolutely unaffected by his lordship's decision, though the patent is incidentally mentioned in the same.

THE BIRMINGHAM CHAMBER OF ARBITRATION.

In our columns recently we dealt with the statements which had been made at the time as to the unsuccessfulness of the London Chamber of Arbitration. We then pleaded for a longer trial before the experiment in the Metropolis was dubbed a failure.

Though some may be disposed to think there was sufficient evidence to show that the Chamber was not wanted, we think we have been justified in our opinion to the contrary, by the recent action of the Birmingham Corporation.

The best proof of the success of Chambers of Arbitration is whether they extend or not. Birmingham at all events has decided to follow the lead of the London Chamber of Commerce, and last week an arbitration chamber modelled on the London one was opened. A good list of arbitrators has been secured, and the fees are moderate, as may be seen elsewhere in this issue. It is anticipated that the Chamber will be more than ordinarily useful in the Birmingham district, as at present, with busy men, the alternative to litigation is to give up trading with those they cannot agree with; neither of which is always convenient. The Chamber will place at their option another means of settlement. There truly appears to be a good prospect for the new Chamber, particularly on one point. It has been argued that the slow development of the London Chamber was due to the hostile attitude of the legal profession. The Birmingham Chamber however has the full approval of the profession, representatives of the Law Society and the Bar being present at the inaugural meeting, and speaking in favour of the new departure, which has our good wishes for success.

NITRATE COMPANIES.

There seems to be more or less of a run on nitrate just now. Only a few months since one large concern was floated which certainly so far bids fair to be an undeniable success, and now in the last week the public have been invited to take up shares in the San Patricio United Nitrate Co., Limited, with a capital of £150,000. Because some existing companies are not remunerative it does not follow that the new company will not succeed in earning dividends for the shareholders. It is, however, rather venturesome for the Board to have agreed to pay the vendors the whole of the capital (with the exception of £5,000.), in addition to the stocks of iodine and nitrate up to September 1st. Still, it is evident there are those who do not think so, if we are to accept as correct the statement that letters of allotment and regret have been duly despatched. The owners put the annual production at 21,000 tons per annum, though the same has been computed at 30,000 by calculation. It is

obvious which is likely to be the more reliable estimate. In the prospectus a point is made of the fact that the Company will be large producers of iodine. Well, so are nearly all other companies more or less, and if large producers are to become numerous, iodine will not remain for long the remunerative by-product it is at present. It is, therefore, not quite clear why iodine should be so prominently mentioned, when presumably nitrate is to be the staple source of the company's profits.

ESTIMATING CALCIUM OXIDE IN QUICKLIME.

IN a paper on this subject by Messrs. W. E. Stone and F. C. Scheuch, based upon experiments conducted in the laboratory of the Purdue University, and communicated to the American Chemical Society, the authors point out that the value of quicklime depends upon the percentage of CaO which it contains. This value may be diminished by the presence of other substances originally present in the limestone, consisting usually of magnesia, alumina, silica, and iron; by incomplete ignition in the lime-kiln, on account of which some calcium carbonate fails to be converted into calcium oxide; and lastly, by a partial "slaking," by which a portion of the calcium oxide reverts to calcium carbonate.

An analysis of quicklime, therefore, should show not only the amount of calcium present in distinction from other elements, but should distinguish between the calcium as oxide and other forms of combination. The customary gravimetric method, based upon solution of the calcium compounds in acids, precipitation as calcium oxalate, ignition, etc., attains only the first of these requirements and affords no data for judging of the original condition of the calcium thus found. Consequently this method may furnish erroneous conclusions with regard to the commercial value of the material examined.

The method here proposed enables one to determine with a high degree of accuracy and rapidity the actual amount of calcium oxide in quicklime. It is based upon the well-known fact that the alkaline earths form definite compounds with sucrose, called saccharates. Several such compounds are known with barium and strontium. With calcium oxide, sucrose forms at least three compounds, the mono-, di- and tricalcium saccharates, containing respectively one, two, and three molecules of calcium oxide to one of sucrose. The two first are formed when quicklime is dissolved in the cold in a sucrose solution. On heating this to boiling, a precipitate is thrown down consisting in the main of the tricalcium saccharate.

Numerous authorities may be quoted with regard to the solubility of calcium oxide in sucrose solutions of which the two following will suffice for citation.

Berthelot gives the maximum solubility in solutions of sucrose of varying strength.

Grams sugar in 100 cc.	0.096	0.40	1.58	1.386	2.00	4.850
CaO dissolved	0.154	0.194	0.281	0.326	0.433	1.031

The following data are from Schatten.

In ten grams of sugar solution of different percentages:

Per cent.	1.	4.	8.	12.	16.
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Grams CaO dissolved.	0.029	0.080	0.160	0.271	0.394
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Numerous other references indicate the ready solubility of calcium oxide in sucrose solutions, and the apparent possibility of applying this fact to the separation of the actual calcium oxide from the other constituents of quicklime, led us to make the following studies:

1. The conditions under which calcium oxide is dissolved in sucrose solutions:

Lamy has shown that solubility varies inversely with the temperature. Ten litres of ten per cent. sucrose solution, at the given temperatures, dissolved the stated amounts of calcium oxide.

Temperature C°	0°	15°	30°	50°	70°	100°
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Grams CaO dissolved.	250	215	120	53	23	15.5
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For our experiments, pure calcium oxide was prepared by igniting pure calcium carbonate to a constant weight. It was found by repeated experiment that one gram of this material was easily soluble in 150 cc. of a ten per cent. sucrose solution after agitating fifteen to twenty minutes at ordinary temperature. To accomplish perfect solution it was necessary that the material be finely pulverised. If heat was employed, the lime was converted into a pasty, insoluble mass, which, however, dissolved on cooling.

2. The degree of solubility of calcium oxide in sucrose solution. Repeated experiments gave the following results:—

One gram of pure CaO was only partly dissolved in 100 cc. of a five per cent. sugar solution.

One gram of pure CaO was only partly dissolved in 150 cc. of a five per cent. sugar solution.

One gram of pure CaO was only partly dissolved in 100 cc. of a ten per cent. sugar solution.

One gram of pure CaO was completely dissolved in 150 cc. of a ten per cent. sugar solution.

From these results it appears that not less than 150 cc. of a ten per cent. solution of sucrose could be safely employed to dissolve the calcium oxide in one gram of quicklime.

3. Behaviour of other constituents of quicklime toward sucrose solutions:

Besides calcium oxide, quicklime usually contains more or less iron, alumina, magnesia, and silica. In addition to these, calcium carbonate may also be present. The behaviour of these toward sucrose solutions was studied in detail, with the following results:

Magnesia.—Pure magnesium oxide, specially prepared, was treated with a ten per cent. solution of sucrose. One hundred and fifty cc. of the latter, after shaking with one gram of magnesium oxide for thirty minutes, were filtered and treated with ammonia and sodium phosphate, but only the faintest turbidity resulted. Again, one gram of magnesium oxide was shaken with 150 cc. of sucrose solution, filtered, and the filtrate titrated with standardised hydrochloric acid, and an equivalent of 0.001 gram of magnesia was found, or one-tenth of one per cent. These results show that magnesia is not appreciably soluble under the given conditions. Indeed, the existence of a compound between magnesia and sucrose is doubted. On the other hand, magnesia is said to be freely soluble in a solution of calcium oxide in sucrose. To test this point, mixtures of pure magnesium and calcium oxides were treated with sugar solutions as follows:—One-half gram of each were mixed and shaken with 150 cc. of sugar solution. A considerable portion of the material was insoluble. We filtered and titrated the filtrate with standardised acid, the result being an exact equivalent of the calcium oxide employed. Again, one-half gram of each was mixed and treated with sugar solution as before. We filtered and precipitated the calcium from the filtrate by means of ammonium oxalate. The filtrate from this showed only slight turbidity when treated with ammonium and sodium phosphate. These results show that magnesium oxide is not soluble to an appreciable degree in sucrose solution containing calcium oxide, under the stated conditions.

Alumina was found quite insoluble, no appreciable amount being found in the filtered sucrose solution.

Calcium carbonate was also insoluble to any appreciable degree in the ten per cent. sucrose solution under the stated conditions.

Ferric oxide, shaken with ten per cent. sugar solution, was also insoluble. Schachtup and Spunt mention that ferric oxide inverts sucrose, but not in an alkaline solution. We have verified this by heating a small quantity of ferric oxide with a sugar solution; the latter soon acquired the power of reducing Fehling's solution. But when the same experiment was repeated with the addition of some calcium oxide no inversion occurred. It is evident, therefore, that the iron contained in quicklime would not be affected by sucrose solution.

4. The determination of calcium oxide when dissolved in sucrose solution:

Calcium oxide, when dissolved under the preceding conditions, admits of determination, either gravimetrically by precipitation as calcium oxalate or volumetrically by titration with hydrochloric acid. Several comparisons of the two methods were made, using known amounts of pure calcium oxide, and while each were accurate to the extent of yielding the theoretical numbers, the volumetric method was found preferable on account of its greater rapidity. For the latter method, standardized hydrochloric acid of about fifth-normal strength was employed, using tropaeolin or rosolic acid as an indicator.

5. Application of the preceding data to the analysis of quicklime.

Following the conclusions derived from the preceding tests, several samples of quicklime were analysed for calcium oxide. They were all in a fresh state, and contained little calcium carbonate.

In each case, approximately one gram of the finely pulverized material was shaken with 150 cc. of a ten per cent. sucrose solution during twenty minutes, the solution filtered, and the clear filtrate titrated with standardized hydrochloric acid. At the same time other portions of the same samples were dissolved in hydrochloric acid, and the calcium determined in the usual way by precipitation as calcium oxalate. Following are the results:—

Sample	Weight of quicklime taken, grams.	Volume of ten per cent. solution of sucrose taken, cc.	Per cent. CaO by titration method.	Per cent. CaO by gravimetric method.	Variation of volumetric method.
No. 1	1.020	150	92.12	93.00	-0.88
" 2	1.090	150	91.90	92.28	-0.38
" 3	1.006	150	92.15	93.10	-0.95
" 4	1.108	150	95.01	93.90	-0.89
" 5	1.023	150	87.50	87.70	-0.40
" 6	1.232	150	91.70	92.30	-0.60

The results by the sucrose method were in each case slightly lower than by the gravimetric method, a discrepancy which may be ascribed to a small amount of calcium carbonate present in the sample.

In quicklime which had become partially slaked, this discrepancy would be still greater since the sucrose method would indicate only the actual calcium oxide. Aside from this, the greater ease and rapidity of the latter recommends it in cases where the total calcium is present in the form of the oxide. An entire determination may thus be made in a half-hour with a degree of accuracy quite sufficient for all ordinary purposes.

IMPORTS AND EXPORTS FOR OCTOBER.

THE Board of Trade returns for the past month are much more satisfactory than they have been for some time. The imports of oils are greater and of chemicals less. The increased shipments of alkali and bleach have principally been due to the better demand in the United States.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE

ARTICLES.	Quantities.	
	1893.	1894.
Margarine	Cwt. 116,049	90,171
Copper Ore and Regulus	Tons. 22,250	11,649
Pyrites	" 41,001	39,699
Tin	Cwt. 65,070	73,883
Alkali	" 9,836	15,148
Brimstone	" 51,033	55,205
Dyes, Coal Tar	£ 49,513	71,955
Salt-petre	Cwt. 22,142	23,067
Petroleum	Gall. 15,957,618	18,498,358
Turpentine	Cwt. 39,991	22,542
Guano	Tons. 968	1,059
Nitrate of Soda	" 3,639	13,019
Paraffin	" 59,112	69,134
Rosin	Cwt. 90,906	48,916
Tallow and Stearine	" 167,047	174,915
Oil Seed Cake	Tons. 19,685	18,069
Wood Pulp	" 23,030	22,225

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 396,622	645,470
Cement	Tons. 40,485	33,301
Coal and Coke	" 2,443,763	2,915,527
Copper, all kinds	Cwt. 85,093	99,558
Iron and Steel	Tons. 247,717	241,270
Chemical Manures	" 21,881	18,475
Oils, seed	" 4,476	4,115
Salt	" 51,350	55,743

PROPOSED CHESHIRE COLLEGE OF AGRICULTURE.—The Technical Instruction Committee of the Cheshire County Council have passed a resolution recommending the Council to acquire Saltersford Hall, a mansion near Holmes Chapel, and about one hundred acres of land adjoining, for an agriculture college and experimental farm. The house has dining-rooms, several sitting-rooms, kitchens, and over twenty bedrooms, with ample accommodation for seventy pupils. The gardens cover two acres, with extensive vineries and conservatories, which will enable horticulture to be taught with every branch of farming. The Committee suggest additions to the buildings of schoolrooms, laboratory, and workshops. The resolution has been adopted.

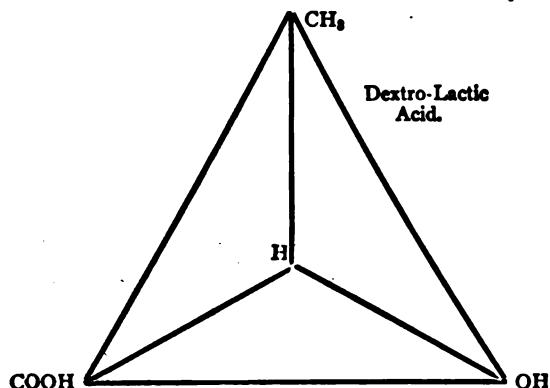
STRIKE OF SALT UNION WORKERS.—Some half-dozen of the wallers employed at the Salt Union Works at Anderton, Cheshire, have come out on strike. The strike will affect the firemen at the same works. In reply to Mr. Yarwood, the men's secretary, the Salt Union wrote that the rate of pay for the 60ft. pans was fixed at a time when, owing to the absence of undue competition, it was possible to pay high wages, because satisfactory prices were obtained for the product, but that owing to the increase of competition, not only in England but abroad, satisfactory prices were no longer obtainable, and, so far from it being a question of increasing wages, it would rather be a question as to how far wages should fall in sympathy with prices. Mr. Yarwood again pressed the matter on the attention of the directors, and they finally replied that the matter would not admit of any alteration in wages; in fact, if the men persisted in their demand they would have to take into serious consideration the advisability of permanently stopping the pans. Subsequent negotiations proving ineffective, the men have been called out.

OPTICAL ACTIVITY AS A GUIDE TO CHEMICAL CONSTITUTION.

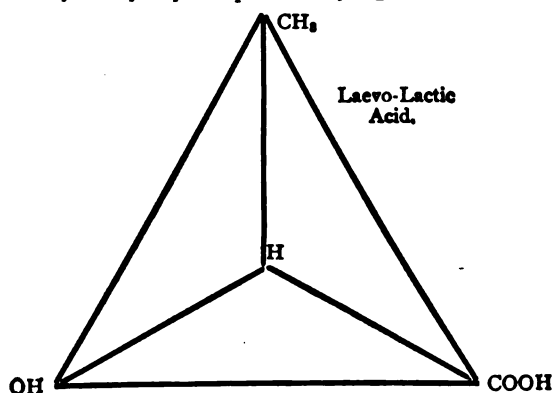
By WM. HUNTINGTON, B.Sc.

(Continued from page 286.)

TO complete the idea of an asymmetric carbon atom, the necessary condition is that the four groups in combination must be all different. Referring to the two formulæ for lactic acid, it would be noted that the first contains an asymmetric C atom, the combining groups being CH_3 , HO.H , and COOH ., while in the second the C atom is not asymmetric, as the four attached groups are not all different (CH_3OH , H , H , COOH .). With the help of this

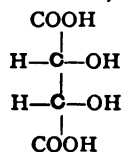


notion of the asymmetric C atom, we are able to account for the existence of the three almost identical varieties of lactic acid. Thus the dextro-rotary variety may be represented by Fig. II., and its reflection



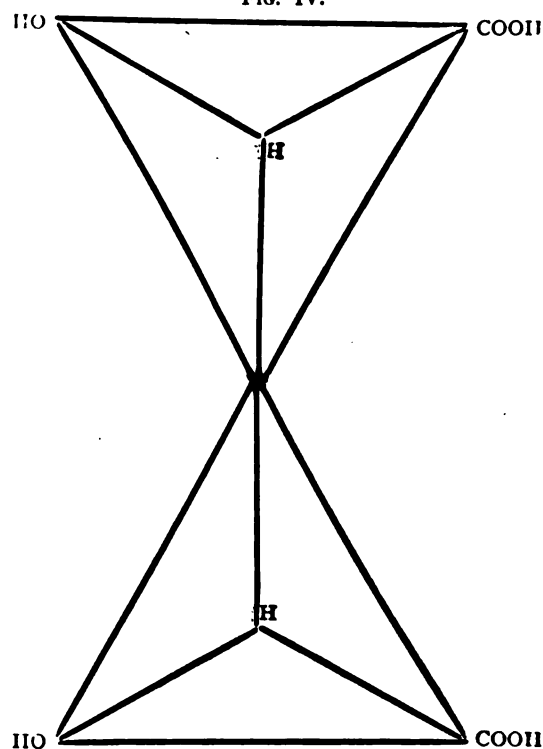
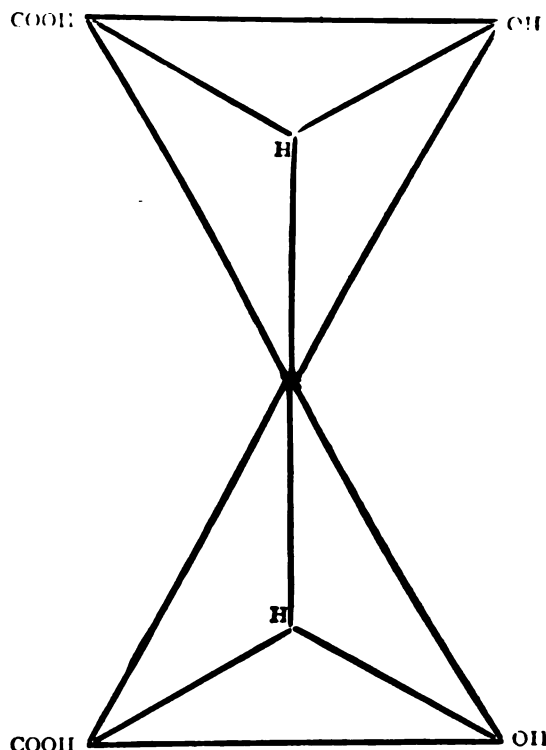
(Fig. III.) will then represent the laevo rotary form. As in the case of the crystals of ammonium bimalate. Fig. III. is the reflection of Fig. II., and such a double arrangement is possible wherever an asymmetric C atom occurs. The third inactive variety of lactic acid is conceived as consisting of equal parts of the dextro and laevo forms, so that their rotations are mutually destructive.

The case with which this idea explained the many cases of optical isomerism led its authors to declare its general application; that where an asymmetric C atom existed, two forms of the compound containing it were possible, differing only in their action on polarised light; and conversely, evidence of optical activity was evidence of the presence of an asymmetric C atom. It is remarkable that while no facts have been found to militate against this declaration, numerous observations have resulted in furnishing strong corroboration. Thus tartaric acid has the following formula assigned to it by chemists, and it is at once apparent that it contains two asymmetric C atoms, viz. :—



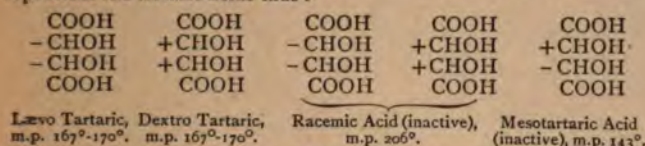
The following arrangements, shown in Figs. IV. and V., are, therefore, theoretically possible.

If Fig. IV. be regarded as representing the dextro-form, then Fig. V will represent the laevo-form, and a mixture of equal parts of these two would give us an inactive form. But, theoretically, a fourth arrange



ment is possible, which may be represented by Fig. VI., in which either the upper or lower tetrahedron has had its groups rearranged. We may conceive that the + rotation due to the upper arrangement would

be neutralised by the - rotation due to the lower one, and that an inactive body would result. Thus, theory indicates four possible varieties of tartaric acid, two active and two inactive, and, as a remarkable confirmation of theory, four are actually known. The dextro and levo forms are exactly identical in chemical properties. The first-mentioned inactive form, known as racemic acid, obtained by evaporating the mixed solutions of the active forms to crystallisation, differs from them in yielding hydrated crystals, and in precipitating a solution of CaSO_4 , but a solution of racemic acid acts just like a mixture of the two simple acids. Again, racemic acid can be split up into its dextro and levo components, while the other inactive variety (mesotartaric acid) cannot be so decomposed—its inactivity is due to *internal compensation*, while with racemic acid it is due to *external compensation*. Dr. Frankland represents the tartaric acids thus:



Now it is a peculiar fact that when these bodies are prepared artificially in the laboratory, it is the inactive representative which is invariably obtained. Thus *sarcosactic acid* which occurs naturally in flesh,

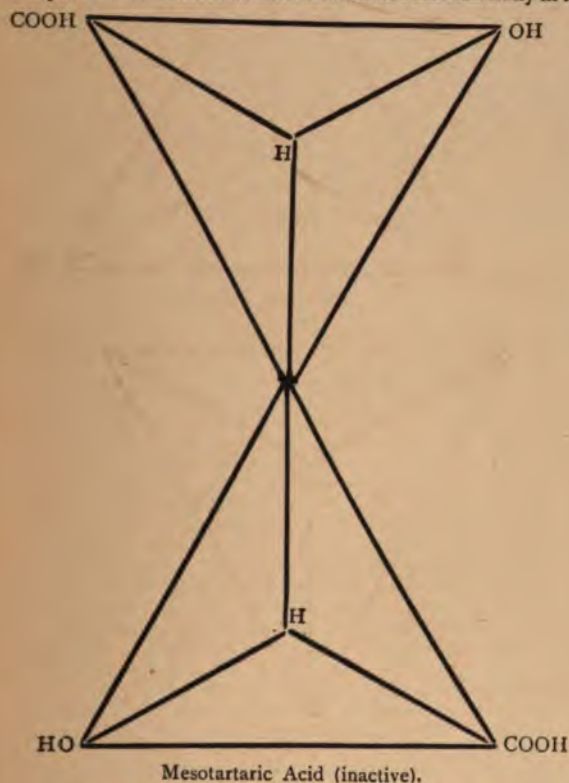


FIG. VI.

is dextro-rotary; that produced by boiling chlor-propionic acid with alkalis is inactive. Ordinary *tartaric acid* from grape juice is dextro-rotary; that produced by silver oxide acting on di-brom-succinic acid is inactive (racemic acid). Theory accounts for this by urging that as there is no more reason why the dextro should be produced rather than the levo-modification, the chances are in favour of the production of an equal number of molecules of each, and so an inactive compound results. Theory thus attributes this peculiarity to the operation of external compensation, and it is supported by the fact that it is possible to separate the active constituents in such cases. Racemic acid, for example, in the form of its sodium salt ($\text{C}_4\text{H}_4\text{Na}_2\text{O}_6 + 4\text{H}_2\text{O}$) may be saturated with ammonia. From the saturated solution crystals of sodium ammonium racemate ($\text{C}_4\text{H}_4\text{Na}(\text{NH}_4)\text{O}_6 + 4\text{H}_2\text{O}$) separate out, identical in form except that like those of ammonium bimalate, they are not superposable. Picking out individual crystals, one kind is found to be dextro-rotary, and yields ordinary dextro-tartaric acid, while the other kind proves to be levo-rotary, and yields the levo-acid. Or the dextro crystals may be precipitated separately from the saturated solution by introducing some dextro-tartaric crystals, and in a corresponding manner the levo crystals may be obtained separately. The chief method

of separation, however, is the employment of various micro-organisms or ferments.

Thus Dr. Frankland found that glyceric acid ($\text{CH}_2\text{OH}.\text{CHOH}.\text{COOH}$) prepared from glycerine ($\text{CH}_2\text{OH}.\text{CHOH}.\text{CH}_2\text{OH}$) is inactive. On fermenting it by means of a particular bacillus, he found that about half was destroyed by it, while the remaining portion proved to be strongly dextro-rotary. The bacillus had evidently destroyed the levo-constituent. Again Messrs. Frankland and McGregor, acting upon ordinary inactive lactic acid by means of a bacillus found the levo constituent again destroyed, and the dextro form left.

(To be continued).

Legal Intelligence.

JUDICIAL COMMITTEE OF THE PRIVY COUNCIL.

In the presence of Lord Watson, Lord Hobhouse, Lord Macnaghten, Lord Shand, and Sir Richard Couch.

SEMET AND SOLVAY'S PATENT.

This was a petition for prolongation of letters patent, dated November 17, 1880, granted to Louis Victor Semet and Ernest Solvay, both of Brussels, for the invention of "improvements in apparatus for coking and distilling coal."

The petition stated that the invention related to a novel mode of construction and arrangement of ovens for coking and distilling coal (which might be shortly described as "retort ovens"), by the use of which, as contrasted with other coking ovens in ordinary use, the quantity of coke obtainable from each ton of coal was largely increased, the duration of the processes of coking and distillation was most materially diminished, and the valuable bye-products of the gas produced in coking were readily preserved and offered for condensation and utilization. The invention possessed very great merits. All possible efforts had been used, and very heavy expenditure had been incurred, in order to promote the use of the invention. For some time it was found impossible to obtain any practical introduction of the invention in this country, partly by reason of the expense of forming or setting up a battery of coking ovens, but chiefly by reason of the opinion which for a long period prevailed in this country that coke and the bye-products of coke produced in retort ovens were inferior to the products of beehive ovens. In Belgium, where coal-mining and the manufacture of iron and steel were among the chief industries, ovens constructed according to the invention had been in operation for some years past. The invention gained a silver medal at the Paris Exhibition of 1889, and a diploma of honour at the Antwerp Exhibition of 1894. The petitioners had, by means of attracting the attention of English manufacturers to the advantageous use which had been made of the invention in foreign countries, and by their efforts and expenditure, succeeded in establishing the reputation of the invention in this country, and they had now so effectively brought the advantages of the invention to the notice of the public that it would henceforth become remunerative and compensate the petitioners for their labour and expenditure in the past. The petitioners, subsequently to the date at which the provisional specification of this patent was lodged, took out patents for the same invention in France, Belgium, Germany, and other countries, which foreign patents are still subsisting.

Witnesses were called in support of the petition and spoke to the great merits of the invention. It was stated that the opinion which for a long period prevailed in this country that coke and the bye-products produced in retort ovens were inferior to the products of beehive ovens now no longer existed. The patent taken out by the petitioners in France for the invention would expire in 1895, and the patents taken out by them in other foreign countries would expire at other dates subsequent to 1895. The patent which the petitioners took out in Belgium would expire in 1900.

Their lordships said they agreed humbly to recommend her Majesty to prolong the letters patent for a period of five years. As the case involved some legal considerations, their Lordships would deliver the reasons for their report on some future day.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION.

(Before Mr. Justice Romer.)

THE CASSEL GOLD EXTRACTING COMPANY (LIMITED) v. THE CYANIDE GOLD RECOVERY SYNDICATE (LIMITED) AND OTHERS.

After this action had commenced the defendant syndicate changed their name to that of the Electro Cyanide Gold Recovery Syndicate. The plaintiffs were the registered owners of letters patent (14,174 of 1887) granted to John Stewart MacArthur, Robert Wardrop Forrest, and William Forrest for "Improvements in obtaining gold and silver from ores and other compounds." The particulars of the alleged

invention are set out in his Lordship's judgment. The action was brought to restrain the defendant syndicate and two other defendants, Carl Maria Pielsticker and Thomas Gilbert Bowick, from infringing the patent. The trial lasted several days during Trinity sittings, and at its conclusion his Lordship took time to consider his judgment.

On Thursday, 8th inst., Mr. Justice Romer delivered his deferred judgment as follows:—Since the conclusion of the arguments I have read through the notes of the evidence, and have further considered that evidence and the different points urged by counsel, and in the result I am confirmed in the opinion that this patent cannot be sustained. The invention claimed in the patent is a very simple one and the claim very comprehensive. It is for the application of a solution containing cyanogen, so as to dissolve the gold and silver in powdered ores. The gold—for I need not further distinguish the silver—is then to be recovered from the solution by any of the well-known ways. The kind of solution to be used as the solvent is described by the specification very broadly. It is to be any solution containing cyanogen or any cyanide soluble in water (such as cyanide of potassium), or any other substance or compound containing or yielding cyanogen. No special apparatus or machinery or device or scheme of any kind is required. The solution is simply to be poured on the ore. You may stir the ore about in the solution if expedition is required; or, if you choose, you may let the solution rest so as gradually to solve the gold in the ore. In fact, the patent really is for an alleged discovery that a solution containing cyanogen can be used to dissolve out the fine gold in powdered ore. Now, how did matters stand at the date of this patent? It was perfectly well known that a solution of cyanide of potassium would solve gold in a fine state, and that the finer the gold the more speedy the process. The peculiar property of cyanogen that it would solve fine gold if oxygen were present was well known. The chemist in his laboratory knew that by pouring a solution of cyanide of potassium on fine gold he could solve the gold. It is true that in this country no one had commercially used a solution of cyanide of potassium to extract the fine gold in the powdered ore; but this is not surprising when the following facts are borne in mind: First, that in this country very little gold ore is found at all, and that, so far as appears, up to the date of this patent ores were not brought to this country from abroad to have the gold extracted here as a commercial transaction. And, secondly, even if the gold in the ore had been extracted there was no known successful and paying method of recovering the gold from the solution. It is proved before me that for some time after the date of the plaintiffs' patent the patentees' alleged invention was not commercially worked because no efficient and paying method was known of recovering the gold, and that it was not until the patentees subsequently made a discovery, which they patented, of a new method of recovering the gold from the solution that the use of a solution of cyanide of potassium to extract the fine gold in the ore was practically employed for commercial purposes. But the matter does not rest here. Not only was the above-mentioned property of cyanide of potassium known, but in 1867 one Rae took out a patent in the United States, and the specification of his invention was published here before the date of the plaintiffs' patent. Rae's invention, as there described, was (*inter alia*) for the extraction of the gold from the powdered ore. His process was this. He took a solution suitable to solve the gold from the ore, and he expressly mentions a solution of cyanide of potassium as one that could be employed, and he poured this solution on the ore in a vessel which he agitated by machinery, and he used electricity for two purposes—first (as he expressly says), to facilitate the action of the solution in solving the gold in the ore; and, secondly, to recover it from the solution by depositing it on a certain base in the machine. So that, undoubtedly, in his specification he recommends the use of cyanide of potassium in a solution as a means and for the purpose of solving the gold in the powdered ore; and he was, of course, right in so using it. And I do not see that his recommendation is rendered worthless because he also recommends electricity to facilitate the action of the solution and also to do some other work with the solution after the gold is extracted. Then, again, in 1884 one Simpson took out a patent in the United States, and his specification was published here before the date of the plaintiffs' patent. Simpson's process, as described in this specification, was substantially identical with the plaintiffs' except that the solution he mentions is one not of cyanide of potassium only, but of a comparatively small quantity of carbonate of ammonia added. Of this addition of carbonate of ammonia the plaintiffs have naturally made the most, but I am satisfied on the evidence that the addition does not substantially affect the operation of the cyanide of potassium on the ore, and that Simpson's solution is perfectly efficacious. Why he added the carbonate of ammonia is not clear. Possibly because it was of use when the ores were what is termed "acid," possibly because he did not dare, having regard to existing knowledge, to claim boldly the cyanide alone. But I think a person reading this specification would gather from it that cyanide of potassium was the main ingredient, and was employed because it was a solvent for the gold in the ore. Under these circumstances I come to the conclusion

that at the date of the plaintiffs' patent, having regard to what was then published and known, there was no real invention in the plaintiffs' so-called discovery. And indeed, when I consider the evidence of Mr. MacArthur, as to how he came to make his alleged discovery, what it comes to really is this—that, so far as the main alleged invention is concerned, he wanted to find a solution for the gold in the ore and tried several solvents, and among them he tried cyanide of potassium, which he knew to be a solvent of fine gold, and not unnaturally he found that it answered. There being, in my opinion, no real invention or discovery in the application at the date of the patent of a solution of cyanide of potassium to extract the gold from powdered ore, it follows that on this ground alone the patent must fail. But before I quit this part of the case I ought to say a word about the expert evidence bearing on it. Several eminent chemists were called on each side, but the two sides do not agree in their evidence, and in the conflict of testimony I am not only at liberty but am bound to exercise my own judgment, and that judgment agrees with the views of Mr. Riley, Mr. Mactear, and Professor Atfield, who stated that, in their opinion, at the date of this patent no invention was required to discover that a solution of cyanide of potassium could be practically applied to dissolve gold and silver in crushed ore. But, in addition to the above, I think there is another ground on which this patent is bad. Even if the invention was one which could form the good subject of a patent, I think it was anticipated by Rae's and Simpson's specifications. Test it in this way. If the patent were held valid, would not Rae's and Simpson's processes, if now used according to the specifications published, be liable to be stopped as infringements? I think they certainly would. What chance of escape would a person have who took Rae's, for instance, and used the cyanide of potassium specially mentioned by Rae? It would be said against that person with crushing effect that he was using the cyanide of potassium for the very purpose pointed out in the plaintiffs' patent—viz., to dissolve the gold in the crushed ore, and not the less because he tried to assist the process by the aid of electricity which might or might not be of any real assistance, and certainly not the less because he used the electricity also for another and different purpose. So, also, a person now using Simpson's process would be liable to be stopped. For it would be proved against him that he was using the cyanide of potassium for the very purpose and in the very way pointed out in the plaintiffs' specification, and that the addition of carbonate of ammonia made no material difference. To hold that Simpson's was not an anticipation would lead to a strange result. A person using cyanide of potassium alone would be an infringer, but if he chose to add a slight amount of carbonate of ammonia (which is cheap and practically innocuous) he could not be restrained. This would in itself render the plaintiffs' patent practically valueless. Now, as the specifications of Rae and Simpson were published here before the date of the plaintiffs' patent all persons in this country are at liberty to use the processes there set forth, and that right is incompatible with the persons being liable, if they do use such processes, to an injunction at the suit of the plaintiffs. For these reasons the action must be dismissed.

His Lordship said the plaintiffs must pay the costs of the action, with the exception of those which related to infringement. These costs must be paid by the defendants as they had unnecessarily put the plaintiffs to a great deal of expense on this part of the case. Execution must be stayed pending an appeal, on the plaintiffs undertaking to appeal at once.

Mr. Fletcher Moulton, Q.C., gave notice of appeal.

(Before Mr. Justice North.)

SALT UNION CO., LTD., v. HENRY INGRAM THOMPSON.

In this case, Mr. S. Eady, Q.C., moved for an injunction restraining defendant, a salt manufacturer, who is proprietor of a piece of land at Marston, in the county of Cheshire, known as Red Lion Yard, from extracting brine from plaintiffs' land. The plaintiffs also asked that the plaintiff company, their solicitor, agent, and surveyor might be at liberty to enter upon defendant's land at all reasonable times upon giving twelve hours' notice, with the object of inspecting the shaft which was being sunk by the defendant for the purpose of extracting brine. Counsel stated that the plaintiffs recently acquired a piece of land at Marston. A shaft had been sunk by the defendant upon the north side of the plaintiffs' land, and the defendant alleged that he had secured by his operations a plentiful and permanent supply of brine. If he had there was a physical impossibility of so obtaining it without tapping the supply of the Salt Union. If the defendant's case was an honest one counsel saw no reason why he should refuse inspection. He alleged, however, that he had some secret in regard to the way in which he had sunk the shaft which he did not wish to reveal. Mr. Hall, Q.C., read an affidavit of the defendant, who stated that there was no tunnel into the plaintiffs' land, and that he did not intend to trespass in any way. His Lordship thought it was a case in which an order for inspection should be made. The case was a very suspicious one, and if the defendant was doing nothing wrong there was no

reason why he should object to inspection. It was desirable to know what the defendant was doing, and the Court intended to ascertain by making an order for immediate inspection of the defendant's mine.—The order was accordingly made, the defendant undertaking to withhold operations meanwhile. The parties subsequently agreed that Mr. Joseph Leech, late senior accountant and inspector of mines, should inspect the defendant's works. Mr. Justice North sanctioned the appointment.

MANCHESTER ASSIZES.

NISI PRIUS COURT.

(Before Mr. Justice Wills.)

CANNINGTON, SHAW, AND CO., LTD., v. MURCH AND EVERETT, LTD.

The action arose out of an order for a certain quantity of half-pint bottles given by the defendants to the plaintiffs, who were manufacturers of glass bottles at St. Helens, and held a high position in the trade. The order was for 250 gross of half-pint bottles. The defendants, who were beer and porter merchants, complained soon after the bottles were delivered that a great many of them were not of the proper capacity, with the result that they had many complaints from customers. This had come about in this way. At the time the order was given the coal strike was in progress. Messrs. Cannington, Shaw, and Co.'s works were to some extent stopped, and in order to supply the order they had recourse to one of the best manufacturers in Germany. It would be understood that it was impossible to make glass bottles to an exact measure, though the glass-blowers, with wonderful skill, were able to come within a very narrow margin of difference.

The Judge said both parties came perfectly clean out of the dispute. The fault seemed to be with neither. In all probability the explanation was that the German workmen, accustomed to make litres and half-litres, could not blow with the same accuracy to a different measure.

SOCIETY OF CHEMICAL INDUSTRY.

LONDON SECTION.

THE first meeting of this Section was held last week. A paper on "Alloys," by the late C. R. Alder Wright, was read by Mr. Watson Smith. A paper was also read by Mr. Reid on "Oxidised Linseed Oil." He said nearly all the linseed oil used in this country was of the oxidised form. There are two large and several small methods of oxidising it; the one large one is the application of heat, up sometimes to a maximum of 500 deg. Fah., and occasionally expediting the action by blowing air through it; the product is a dark-coloured viscid mass; by the other larger method the oil is boiled with liharge, then allowed to flow over a thin fabric, after which it is suspended in a shed at a temperature of 80 deg. Fah. to 100 deg. Fah.; the fabric is coated and dried thus several times in succession. These lengths of dried oil are passed between rollers; the substance then forms an amber-coloured mass of low tensile strength and considerable elasticity; it is heavier than water. When the doors of the drying sheds are first opened in the morning no mortal can enter them, the air being so full of acroleine; if any use can be made of this waste product, here is a plentiful supply. In the linoleum industry the dried oil is then ground and heated with cowrie gum and other resin until it forms what in the trade is known as "cement."

He had tried experiments with oxidised oil extending over many years, and had observed that the boiled oil goes on oxidising after it has been applied to its various uses. In two years it becomes sticky, in three years it begins to run, in five years it is partly liquefied, is easily soluble in alcohol and partly soluble in water, and finally it becomes a semi-fluid substance containing vegetable acids. These changes are more rapid when paints in which it is used as a vehicle are exposed to the weather, hence such coats of paint have to be renewed at short intervals. For the same reason it affects the permanency of oil paintings, and when it becomes acid attacks the basic pigments; moreover, the floating dirt in the air settles upon the sticky surface and is held there. The brown stains in old books on the pages opposite heavy engravings are due to this sticky product of decomposition; as he had found by analysis. The deteriorated oil causes old note books bound with American cloth, and laid aside for a time, to stick together. When india-rubber is weighted with oxidised linseed oil it becomes useless in a very short time; this fault is sometimes found in the flexible tubing used in laboratories. It seems to be a peculiarity of nearly all flexible substances having somewhat the physical properties of india-rubber that they should oxidise rapidly. He knew but of one exception, and that was the scarce jelly-like mineral, elaterite, of which he exhibited a piece which had been exposed to the air for thirteen years and had not altered at all. Linoleum, with so much oxidised oil in it, lasted longer than might be expected, but then it must be remembered that therein the superoxidised substance was incorporated with 40 per cent. of powdered cork; out of any piece of linoleum several years old, the

products of decomposition of which he had spoken could be extracted by alcohol. He regretted that eminent artists of to-day are using linseed oil in their work. Nut oil and poppy oil are as bad; they oxidise more slowly, but finally liquefy.

NEWCASTLE SECTION.

The first meeting of the Session was held on Thursday, 8th inst., in the new Chemical Lecture Theatre of the Durham College of Science. Mr. George F. France, the newly-elected chairman, presided, and there was a fairly good attendance.

As Dr. J. T. Dunn (who has acted as honorary secretary to this section since the amalgamation of the old Newcastle Chemical Society with the above society) has now left the Tyneside district for Plymouth, a recommendation was read from the Sectional Committee advising the election of Mr. Saville Shaw, lecturer on Chemistry at the College of Science, to succeed as honorary secretary. Mr. Shaw was unanimously elected.

The Chairman, in his opening remarks, advised the younger members to cultivate habits of observation in their technical work, and quoted Mr. Weldon's discovery as an instance of how a change in the conditions of an experiment may make all the difference between success and failure.

The paper of the evening was by Dr. Lunge, and was read by Prof. Bedson, on "Practical results of the Lunge-Rohrmann Plate Towers for condensing Hydrochloric Acid." The author referred to previous tilting between Dr. Hurter and himself in the pages of the Jour. Soc. Chem. Ind., in which theoretical reasoning played the greater part; in this paper he related something about the practical results obtained with the plate towers on a large scale.

A little more than a year ago Mr. Richard Curtins, managing partner of Messrs. Matthes and Weber's alkali works at Duisburg, Germany, fitted up one of their salt-cake furnaces with a condensing plant based on the system of plate towers, and obtained most encouraging results from the outset. The furnace has been running ever since, and is said to produce a better yield of acid than any system which has been hitherto known. Mr. Lasche, the works manager at Duisburg, will shortly publish the results obtained.

The salt-cake furnace is of the muffle type, decomposing 10 charges every 24 hours, amounting to 4 tons 5 cwt., or 30 tons per week. The pan-gas and muffle-gas travel separately through about 30 feet of 16 inch pipes, and then enter into two small towers, 3 ft. wide and 10 ft. or 13 ft. high, of which one is empty, the other filled with coke. The gas then enters an empty receiver, and passes through six ordinary earthenware receivers (bombonnes) holding 66 gals. each, the connections being made by high bends to increase the cooling action. In all, the gases travel over a distance of 130 ft. before entering the plate towers. These consist of nine cylinders, 3 ft. wide and 3 ft. 3 in. high. The bottom cylinder is empty; the next three cylinders contain 60 Lunge-Rohrmann plates; the fifth cylinder is empty; the sixth and seventh contain coke, resting on an earthenware grating, and the two top cylinders are again empty. Dr. Lunge contends that the trial at Duisburg has fully justified his assertion that a plate tower possesses 10 to 20 times the condensing power of an equal space of coke tower. The space filled with plates at Duisburg is 2 ft. 4 in. wide, and 10 ft. high, equal to 74 cubic feet, and this, with a decomposition of 30 tons salt per week, gives only 2.46 cubic feet per ton of salt per week, whereas Dr. Lunge says the average condensing space in English works with coke towers is 50 cubic feet per ton per week.

Dr. Hurter, who had received an advance copy of the paper, also sent a paper on the subject, which was read after Prof. Lunge's. He objected to the author's conclusions, and especially criticised the statement that one cubic foot of Lunge and Rohrmann plate space was as efficient as 20 cubic feet of coke tower space. Out of the 1,400 cubic feet of cooling and condensing space, about 1,000 cubic feet came before the plate towers. He (Dr. Hurter) drew the following conclusion from Prof. Lunge's figures:—In the coke space 74.9% of the total hydrochloric acid was condensed; in the plate space 11.8%, whereas the bombonnes would condense about 13.3% of the whole. He suggested that the Duisburg authorities should also try the experiment of taking out all the Lunge and Rohrmann plates, substitute a rational coke packing, and then observe the results as to yield, etc.

Mr. W. L. Rennoldson gave figures showing that splendid condensation and strong acid were being obtained at the Allhusen works of the United Alkali Company, with a coke space of only one-third the average figure quoted by Dr. Lunge for coke towers.

Mr. W. Martyn compared the plate towers and coke towers as regards first cost, efficiency, cost of maintenance, and supervision, summing up in favour of the coke tower.

A hearty vote of thanks was carried to Dr. Lunge for his valuable paper.

The next meeting is to be held on Saturday, 24th inst., for the purpose of presenting Dr. J. T. Dunn, the late secretary, with a testimonial from members of the section.

ANSWERS TO CORRESPONDENTS.

W. W. O.—Re No. 20,521, the address is 28, Southampton Buildings, Chancery-lane, London. It is the English patent of the Fabriques de Produits Chimiques de Thaan et Mulhouse.

C. C. AND CO.—It shall have our attention. It not unfrequently appears both ways in the originals.

A. W. (Magdeburg).—We have received nothing up to now.

C. B.—It is doubtful if we shall be able to get any further information.

J. W.—We are obliged for communication.

F. C. C.—It must be something that we do not obtain elsewhere.

C. M. B.—They have been sent on. It generally appears in the third issue of new volume. Occasionally in the fourth.

EXPECTANT.—We have to consult the wishes of the majority, and the general interest.

Trade Notes.

THE ANNOUNCED CLOSING OF THE SCOTCH WORKS OF THE UNITED ALKALI COMPANY.—It is interesting to read the many alarmist reports current just now on this subject. Several papers which could, no doubt, if they wished, be better informed, announce with a kind of "just what we predicted" air the total stoppage of the Scotch works. As a matter of fact, we understand that nothing of the kind is contemplated, and that the molehill which has generated the mountain is merely the introduction of certain restrictions in the Scotch production, to bring the output of the works in question into more perfect harmony with the quantities that can be most advantageously disposed of from those bases. It is obviously the soundest policy to centralise the bulk of the manufacture at the points of cheapest production, and to restrict outlying outputs to quantities that can be less economically supplied from the great centres.

PERSONAL.—We learn that a diploma of honourable mention has been conferred on C. T. Kingzett, Esq., F.I.C., in connection with the exhibit of the American Sanitas Company at the recent Chicago Exhibition.

LONDON NITRATE COMPANY, LIMITED.—The directors of this Company have declared a dividend of 8 per cent. on the preference shares of the Company, payable December 1. The books will be closed from November 22 to December 1 inclusive.

LEAD DE-SILVERISING IN N.S.W.—The Broken Hill Proprietary Company is erecting works at Broken Hill, New South Wales, for de-silverising the lead obtained from the mines. This work has hitherto been done at Newcastle-on-Tyne. When the works are in operation the lead only will be shipped home.

THE STASSFURTER CHEMISCHE FABRIK.—This company has declared a dividend of 11 per cent., as compared with 9 per cent. last year. It is anticipated that the dividend next year will not be less than the one just declared. At the same time it is not advisable to indulge in extravagant hopes, as the chemical industry is one in which reverses easily occur.

ERECTING CYANIDE GOLD EXTRACTION WORKS.—It has been decided to erect cyanide works on the Golden Bar Mine, Western Australia, for the treatment of the stone. Ball crushers will be used for reducing the quartz to the desired gauge, and it is believed that under steam pressure much less water will be required in cyaniding than for treatment by battery.

A HUGE STEEL WINDING DRUM.—Messrs. R. Daglish and Co., engineers, of St. Helens, recently completed a huge wrought steel winding drum. Its maximum diameter is 33 feet. It is built upon three cast-iron bosses 9 feet in diameter, made in halves, with planed joints, and secured by strong bolts, each boss being bored to 21 inches in diameter, and secured to the crankshaft by four keys. The centre boss is fitted with eight pairs of arms made of flat steel bars 8 inches by 1½ inch in section, and fitted into suitable recesses prepared on the boss and bolted thereto. The bars are also bolted to a ring of plates at the maximum diameter, 16 inches by ½ inch, and secured to the periphery plates by double angles. The outer bosses are fitted with discs of steel plates 18 feet in diameter, forming the sides of the drum, strengthened with suitable angle rings.

THE PRODUCTION OF GOLD FOR OCTOBER.—The Roodepoort United Main Reef Gold Mining Company announce the following crushing for October:—3,740 tons, 1881 ounces; from cyanide, 1,294 ounces; total, 3,175 ounces. The Henry Nourse Gold Mining Company report that 2,295 tons were crushed, producing 1,851 ounces; cyanide works yielded 706 ounces; total, 2,557 ounces. The Transvaal Mortgage Loan and Finance Company, Limited, has received the following telegram from the head office of the Simmer and Jack Gold Mining Company, Limited:—Crushed, 8,315 tons obtained 3,213 ounces of gold from mill, 542 ounces of gold by chlorination, and 2,264 ounces of gold from tailings by cyanide during the month. The Wemmer Gold Mining Company, Limited, report:—4,636 tons crushed, 2,504 ounces won, 30 days, 40 stamps at work; and 442 ounces from tailings by own cyanide plant.

PREPARING TO MAKE ELECTROLYTIC BLEACH.—The Electro-Chemical Company of the United States is building at Rumford Falls, Me., an evaporating house, and will soon start a lime-slacking house on the lower level. It is putting in four 8-pole, 200 kilowatt dynamos. Each machine is equal to about 300 h.p., or 3,000 incandescent lights. They run 300 revolutions per minute, and carry 1,500 volts and 1,333 amperes. The belts which run these machines are 28 in. wide. These machines will be run continually night and day. The Electro-Chemical Company is also putting in two vacuum pans and five steel storage tanks, which will hold three carloads each.

BIRMINGHAM CHAMBER OF ARBITRATION.—Last week the retiring Mayor of Birmingham, Ald. Johnson, inaugurated the new Birmingham and District Chamber of Arbitration. Ald. Pollack said, accountants had by request appointed representatives to serve on the committee, which would also number representatives of the principal trades of the town. The list of arbitrators was not yet complete, but out of 235 gentlemen applied to only 14 had declined to serve, and 181 had already consented. The committee had adopted a lower scale of charges than that of the London Chamber. For a hearing of one hour with one arbitrator the fee was two guineas; for two hours three guineas; for three hours, four guineas; and half a guinea for each hour beyond that on the same day. When the services of an additional arbitrator, skilled or scientific, were required, the fees would be proportionately increased.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are virtually unaltered in price. Benzols are still quoted 1s. 2d. Carbolic acids are about the same. There is, perhaps, rather less offering for prompt, but price for 60% crude is still 1s. 6d., and likely to be for some time. The demand for crystals is poor for 40% at 5½d. Crude naphtha and solvent remain without alteration, the latter being difficult to sell. Creosote is unchanged. Pitch, f.o.b. East Coast, continues to fetch full values.

Sulphate of ammonia is weak, and operators are active in depressing values as much as possible. Numerous rumours are afloat as to prices for forward, but most of them lack confirmation. Nearest prompt values are:—Beckton £12 3s. 9d., London outside makes £12 5s., Liverpool £12 2s. 6d., Hull £12 2s. 6d. to £12 3s. 9d., and Leith £12 2s. 6d.

REPORT ON MANURE MATERIAL.

The market remains quiet, and prices very much as last reported. For 75/80% Florida phosphate rock 8d. per unit, in cargoes c. f. & i. to good United Kingdom ports, 1895 steamer shipment, asked, but buyers do not follow the advance. For South Carolina River rock 6¼d. per unit would be business, for Peace River rock 6½d. per unit, and for 55/60% Algerian phosphate 6¼d. per unit. There is nothing fresh to report in River Plate bones. Crushed Kurrahee bones, for forward shipment, offer at £4 12s. 6d., without inducing business. Sales of Bombay bone meal, for shipment, have been made at £4 10s., to Liverpool and Glasgow, but at the close sellers do not seem much inclined to go on at the price. Common grinding bones are selling at £4 5s. per ton, ex quay Liverpool, and parcels suitable for charring purposes at £4 7s. 6d. per ton. Nitrate of soda is quiet: due cargoes are worth about 8s. 8d. to 8s. 9d. per cwt. On spot, ordinary quality may be had at 8s. 9d. per cwt., and fine at 8s. 10½d. per cwt.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 6½d., Middlesbrough 35s. 7½d. cash, and hematite 43s. 5d. Copper, steady: Chili bars, G.O.B.'s and G.M.B.'s, closed at £40 2s. 6d. to £40 7s. 6d. cash, and £40 10s. to £40 15s. three months. Tin, active: Straits closed at £66 2s. 6d. to £66 1s. 3d. cash, and £66 6s. 3d. to £66 5s. three months; Australian, £66 5s.; English ingots, £69 10s. Lead, quiet: Spanish, £9 16s. 3d. to £9 17s. 6d.; English, £9 18s. 9d. to £10. Silesian spelter, ordinary, £14 10s. to £14 12s. 6d. Nickel, 1s. 4d. Antimony, £33 10s. Quicksilver: first hands, £6 15s.; second hands, £6 9s. Copper shares, steady: Cape, 1⅞ to 1⅞; Copiapo, 1⅞ to 1⅞; Libiola, 3¼ to 3½; Mason and Barry, 1¼ to 1⅞; Rio Tinto, 14⅞ to 15; Tharsis, 4¾ to 5.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade business has been more active on export account, especially in bleaching powder, which is rather firmer in price: hardwoods at £7. 10s. to £7. 15s., f.o.b.; current quotation on rails at makers' works is £7. 5s. per ton. Quotations for caustic soda for some markets have been lowered during the week, and current values may be taken as follows: f.o.b. Tyne, 77%, £10. 7s. 6d.; f.o.b. Liverpool, 74%, £9 7s. 6d.; 70%, £8. 7s. 6d.; 60%, £7. 7s. 6d.; cream, 60%, £7. 5s. per ton, 10-ton lots and upwards. Ammonia alkali, 58%, is without change in value: bags, £3. 2s. 6d. per ton, f.o.r. makers' works, and casks, f.o.b., £3. 10s. to £3. 12s. 6d. per ton. Chlorate of potash: resales offering at 5½d. per lb. Chlorate of soda 7¾d. per lb. Acetates of lime are lower for spot delivery: brown at £6. 5s. to £6. 10s., and grey at £9. 15s., at usual points; other acetates without change in position. Sulphate of copper, £14. 10s. per ton. Potash, caustic and carbonate, are in fair inquiry, and values remain unchanged. White powdered arsenic is in active demand for export, current quotation being £14. 5s. per ton at usual points. Carbolic acids continue quiet. Prussiate of potash steady at 10¼d. to 10½d. Sulphocyanides in moderate request. Generally, trade is reported quiet in miscellaneous chemicals.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is quiet, and what sales have been made have been done at easier prices: Cameroon to arrive has been sold at £20. 10s., and Lagos for delivery over this and next month at £22. 10s., transit. Olive is steady, though the demand is small: prices ranging from £34. 10s. to £35. for Spanish; other sorts £30. to £34., according to quality. Linseed steady, and prices remain firm at 21s. 6d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Though low prices are likely to rule in cottonseed, values keep fairly firm: Liverpool refined now being steadily held at 19s. to 19s. 9d. per cwt. Castor oil on the whole is steady: good seconds Calcutta has been selling at 2½d. to 2¾d. per lb.; first pressure French is easier at 2d., ex quay, and 2½d. store. There is very little doing in tallow, and prices for both North and South American are really nominal. Resin is firm, with a tendency to higher prices, quotations being, therefore, for the nonce nominal. Spirits of turpentine are unaltered as to position, and price continues at 21s. 3d. per cwt. Petroleum, steady: American, 4¼d. to 5½d., according to quality, and Russian refined 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The announcement of the closing of all the Scotch works of the United Alkali Company has caused some considerable speculation and surprise. We have reason, however, to believe that the current rumours are unfounded.

There is rather more doing in the general market perhaps, but at prices which show no inclination at all to any advance at present. What changes there are tend rather to the fall.

In mineral oils and paraffins there is a continued activity of deliveries out of contract, and the season is fast getting into its busiest. Prices are for the most part unaffected, the only changes being that of paraffin spirit (naphtha), which has advanced to 5d. per gallon, and 865° lubricant, put up to £4.

The market for sulphate of ammonia is very quiet, and sellers' quotations have receded to £12. 5s. prompt, without inducing any business to speak of. The forward section is also a blank.

Chief prices current are:—Soda crystals, 37s. 6d. to 38s. 6d. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 10s., 70/72° £8. 10s., 60/62° £7. 10s., and cream 60/62° £7. 7s. 6d., all nett, Liverpool; bleaching powder, £7. 7s. 6d., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool;

bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¾d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¾d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £12. 5s., nominal prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 5d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 33,200 bags beet, mostly unrefined.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—The demand has been quiet, and markets close in favour of buyers; in some instances as much as 10s. per ton decline has been experienced. America continues to buy linseed upon this market; the imports of which for the week have been 51,593 qrs. from Calcutta, Buenos Ayres, Riga, and Libau. Cottonseed has been imported to the extent of 5,774 tons from Alexandria. Of rapeseed there have been no arrivals, though several parcels from East India and Black Sea are expected within the next few days. Linseed oil has declined about 7s. 6d. per ton on the spot, closing with sellers at 19s. 9d. naked; Nov.-Dec. quoted 19s. 3d., at which rate there are sellers without buyers for Jan.-April; May-Aug., 18s. 9d.; casks 17s. 6d., and ordinary barrels 25s. per ton extra. Boiled and refined ditto from £1. to £2. per ton extra. Export for the week, 4,240 cwt. Refined cotton oil about 10s. per ton lower on the spot, closing with sellers at 16s. 7½d. naked. At this price there are buyers for Nov.-April. Crude, 15s. naked spot. Export of refined, 3,800 cwt. Rape oil unaltered. Tallow 25s. per cwt. "Vegaline," the new vegetable butter, white and neutral, £30. per ton. Olive oil unchanged. Cod oil in better demand, £16. to £19. per ton. Pine oil £6. 5s. per ton. Turpentine 21s. 9d. per cwt. Soft soap 14s. 6d. per cwt. Sod oil quiet. Boiled drying oil £12. per ton.

CAKES.—Linseed cakes firm; 95% pure, £6. 15s. to £7. 2s. 6d. Russians, £6. 5s. to £6. 15s. Oilcakes, £5. 15s. Cotton cakes in good demand; best makes, £4. to £4. 2s. 6d.; seconds, £3. 17s. 6d. to £4. Rape Cakes: East India, £3. 17s. 6d.; Black Sea, £2. 15s. to £2. 17s. 6d.

PAINTS are in poor demand, except for export. White and red leads unchanged. Venetian red, black, yellow ochre, and blue paints from £12. per ton. Venetian red, dry, from £3. 17s. 6d. Red oxide of iron from £7. to £18. per ton. Blue black £4. per ton. Yellow ochre from £3. 15s. Paint remover 30s. per cwt. Black varnish £5 10s. per ton, barrels free. Oak varnish from 5s. 6d. per gallon.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals there is a quiet market generally, without any material alteration in prices. Sulphur scarce and steady at £3. 17s. 6d. per ton. Other products are quoted as under:—

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 5s. per ton, nett; do., 70%, £8 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £2. per ton, nett, gross weight; do., 2 cwt. bags, £2. per ton, nett; chlorate of potash, 5¾d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt firm at 9s. 6d. per ton, f.o.b. Tees. A fair trade doing.

COALS.—The trade here is quiet, with a tendency to lower prices. Competition is keen for forward business of importance. Best Northumberland steam, 9s. 9d. to 10s. per ton; second qualities do., 8s. 9d. to 9s. per ton; small steam, 4s. 6d. per ton; bunker coal, 6s. 9d. to 7s. per ton; do. best Durham, 7s. 6d. to 8s. per ton; coke, quiet, 13s. to 14s. per ton.

New Companies.

Walker, Turner, and Company, Limited. CAPITAL £2,000., in shares of £1. each. This company has been formed to acquire the business of F. Walker & Co., E.C., and to manufacture anti-fouling boiler fluid, etc.

Charles Martine and Company, Limited. CAPITAL £2,500., in £1. shares, of which 1,000 are preference. This company has been formed to acquire and carry on the business of C. Martine, at Preston, as oil refiners, paint manufacturers, etc.

Gavin Thomson and Company, Limited. CAPITAL £10,000., in shares of £1. This company has been formed to enter into an agreement to acquire the business now carried on by Gavin Thomson, at Deptford. The subscribers to the memorandum of association are:—W. B. Syer, 2, Threadneedle-street, solicitor; W. R. King, 22, Lawrence Pountney-lane, chemical manufacturer; A. Perry, 9, Mincing-lane, colonial broker; A. Webb, 28, Budge-row, merchant; C. R. Davis, 133, King Henry's-road, N.W., engineer; G. Harvey, 70, Beresford-street, S.E., clerk; P. B. Colegrave, 360, Twydale-road, S.E., accountant.

Carrara Marble Company, Limited. CAPITAL £10,000., in shares of £5 each. This company has been formed to carry on the business of cement, slate, lime, and stone merchants. The subscribers to the memorandum of association are:—A. Boccacci, Carrara, Italy, marble merchant; A. Dunkley, 168, Mare-street, Hackney, marble mason; C. J. Hayward, 46, Cannon-street, E.C., sanitary engineer; S. Terry, 33, Hoxton-square, N., marble merchant; J. Rounce, 33, Hoxton-square, N., marble merchant; L. G. Laidman, 49, Melbourne-grove, East Dulwich, gentleman; T. G. Davies, 3, Plowden-buildings, E.C., barrister-at-law.

Sheffield Pure Ice and Cold Storage Company, Limited. CAPITAL £20,000., in shares of £5. each. This company has been formed to make and deal in ice and to trade as cold store keepers. The subscribers to the memorandum of association are:—T. Bookless, 74, Market-place, Sheffield, wholesale fish salesman; W. Sissons, 8, Bank-street, Sheffield, chartered accountant; A. H. Holland, 9, Fargate, Sheffield, provision merchant; H. Hide, Killing Shambley, Sheffield, butcher; A. Davy, Paternoster-row, Sheffield, provision

merchant; T. E. Coon, 153, Devonshire-street, Sheffield, fish merchant; T. Earnshaw, 89, Broomhall-street, Sheffield, fish salesman.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Purifying Sewage. E. W. Ives 20,744. October 30.
Treating Complex Auriferous and Argentiferous Sulphuretted Ores. C. F. Claus, C. Goepner, and C. Wichmann. 20,814. October 30.
Improvements in the Manufacture of Portland Cement. E. Wilder and H. Holt. 20,848. October 31.
Disinfectant Compound. E. Burton. 20,852. October 31.
Extraction of Gold. P. De Wilde. 20,872. October 31.
Extracting Precious Metals. A. E. Morgans. 20,956. November 1.
Decomposition of Alkaline Chlorides. M. Guthrie. 20,975. November 1.
Manufacture of Improved Fertilizers. C. H. Thompson. 20,971. Nov. 1.
Extracting Gold from Antimony Ore. H. R. Angel. 21,025. November 2.
Rapidly Estimating Water in Butter and Apparatus therefor. R. H. Wilkinson. 21,092. November 3.
Obtaining Electrical Energy from Fuel Gases. W. Borchers. 21,098. November 3.
Separating Oils and Fats from Water. A. L. G. Dehne. 21,131. Nov. 3.
Obtaining Motive Power from the Explosion of Solids or Liquids. J. L. Osborn and A. Good. 21,152. November 3.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

R. BRIGGS, T. S. BRIGGS, AND W. R. BRIGGS, under the style of Richard Briggs and Sons, lime burners, &c., Clitheroe.
F. H. GOSSAGE AND T. S. TIMMIS, soap manufacturers, Widnes and Liverpool, under the style of William Gossage and Sons.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

GOSTLING, JOHN CUBITT, Great Tower-street, E.C., and Loughton, Essex, cement merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 3rd.

Acetic Acid—			
Holland,	101 pkgs	F. J. Putz & Co	
"	200	Beresford & Co	
"	212	A. & M. Zimmermann	
Acetone—			
Holland,	2 pkgs.	Carey & Sons	
"	4	T. H. Lee	
"	6	A. & M. Zimmermann	
Alkali—			
Germany,	2,000 c.	R. Waters	
France,	220	Arnati & Harrison	
Holland,	2,000	R. Waters	
Alum—			
Belgium,	24 pkgs.	Greiff & Co.	
Ammonia—			
Denmark,	30 pkgs.	M. D. Co.	
Ammonium Chloride—			
Holland,	8 pkgs.	H. Lorenz	
Antimony Ore—			
Sydney,	6 t.	Harrold Bros	
"	35	Vivian, Younger, & Co.	
Queensland,	10	H. Bath & Son	
Asbestos—			
Canada,	£552	W. Byford	
Barium Chloride—			
Germany,	24 pkgs.	Petri Bros.	
Barytes—			
Belgium,	26 cks.	J. L. Lyon & Co	
Holland,	22	O'Hara & Hoar	
"	42	Colthurst & Harding	
Germany,	25	J. Matton	
"	112	W. Harrison & Co.	
Bleaching Powder—			
Belgium,	46 pkgs.	Greiff & Co	

Bleaching Soda—

Germany, 50 c. 100 cs. H. Lambert

Caoutchouc—

France, 6 c. H. Johnson & Sons
" 2 Van Open & Co.
Zanzibar, 38 L. & I. D. Jt. Co.
Cape, 28
Natal, 20
" 148 Kleinwort, Sons, & Co.
Madagascar, 290 Hammond & Co.
Germany, 6 Drolenvaux & Bremner
E. Indies, 24 A. Lawrie & Co.

Castor Oil—

France, 32 brls L. & I. D. Jt. Co.
" 6 Beresford & Co.
" 26 Lucas & Spencer's Wf. Ltd.
E. Indies, 204 cks. Ross & Deering
" 88 Cayzer, Irvine, & Co.
Belgium, 92 brls. Fuert Brs.
" 57 A. Brown & Co.
" 30 Burrell & Co.
Italy, 30 cs. A. M. Serena & Co.

Caustic Soda—

Germany, 1 cs. Pickford & Co

Chemicals (otherwise undescrbed)

Germany, 5 pkgs. Philipps & Graves
" 100 A. & M. Zimmermann
" 79 T. H. Lee
" 5 Craven & Co.
" 7 Fellows, Morton, & Co.
" £6 H. Lambert
" 7 L. & I. D. Jt. Co.
Holland, 10 W. Burton & Sons
" 15 F. Beehm
" 20 pkgs. Beresford & Co.
" 2 L. C. & D. Rly. Co.
Belgium, 1 T. Palmer
" £11 Hernu, Peron, & Co.

Chrome Ore—

Sydney, 95 t. A. Gibbs & Sons

Cream of Tartar—

France, 10 pkgs. M. Ashby, Ltd.
" 3 G. Ward & Sons
" 6 C. F. Gerhardt
" 34 10 cks. B. & F. Wf. Co.
Spain, 10
" 5 C. Christopherson & Co.
" 11 W. C. Bacon & Co.

Dextrine—

Germany, 100 pkgs. H. Lorenz
" 200 W. Balchin
" 50 Hernu, Peron, & Co.
" 17 City Coml. Wf. Ltd.

Dyestuffs—

Extracts
France, 42 pkgs. B. & F. Wf. Co.
" 14 cs. Mory & Co.
" 33 L. J. Levinstein & Sons
" 1 Beresford & Co.
Denmark, 1 J. Sinclair & Son
" 2 Bailey & Leatham
Belgium, 21 Hernu, Peron, & Co.
" 100 T. H. Lee
U. States, 103 W. and S. Bowditch
" 50 W. Burton & Sons
Canada, 80 A. J. Humphrey

Fustic

B. Burmah, 16 t. Benckendorf & Co

Belgium, 5 Low, Son, & Co.

Gambler

E. Indies, 248 pkgs. Brinkmann & Co.
" 4,433 J. Swire & Sons
" 447 Adamson, Gilfillan, & Co.

" 1,130 L. & I. D. Jt. Co.
" 420 Ross & Deering
" 13 E. Boustead & Co.
" 168 R. & J. Henderson
" 260 S. Barrow & Bro., Ltd.

Indigo

E. Indies, 44 cts. R. Von Glehn & Sons

Logwood

Mexico, 13 t. Price, Hickman, & Co.

Jamaica, 5 Anderson Anderson, & Co.

Madder

Holland, 5 pkgs. J. Owen

Myrabolams

E. Indies, 325 pkgs. L. & I. D. Jt. Co.

" 667 Hoare, Wilson, & Co.

" 567 Baxter & Hoare

Orchella

Ceylon, 18 pkgs. L. & I. D. Jt. Co.

Sumac

A. Turkey, 150 pkgs. M. D. Co.

Tanner's Bark

Adelaide, 42 t. Dyster, Nalder, & Co.

" 131 Beresford & Co.

" 200 Baxter & Hoare

Sydney, 145 Devitt & Hett

Turner's

E. Indies, 38 pkgs. Devitt & Hett

Dyestuffs (otherwise undescrbed)

Germany, 1 pkge. W. Burton & Sons

" 1 Craven & Co.

Farina—

Holland, 175 pkgs. J. Barber & Co.

French Chalk—

Austria, £35 W. Harrison & Co.

Germany, 12 pkgs. 104 c. J Knill & Co

" 100 100 c. Ohlenschlager Brs.

Holland, 10 77 F. H. & A. Collier

France, 112 112 J Barber & Co.

" 200 200 Barrett, Tagant & Co.

U. States, 220 1,420 R. G. Hall & Co.

" 500 500 Barrett, Tagant & Co.

" 250 250 Pickford & Co.

" 1,598 2,057 L. Sutro & Co.

" 200 1,200 Union Lithg. Co., Ltd.

Manganese Ore—

Germany, 1 t. B Townley

Manure—

Germany, 29 t. E. Greschde

" 1 N. & R. Collyer

Sydney, 50 A. Hunter & Co.

E. Indies, 447 F. J. Corwell, Son, & Co.

" 100 100

France, 129 J Burnett & Sons

" 310 Odum's Chemical Manure Co.

Germany, 50 F. W. Berk & Co. Ltd.

U. States, 11 Brown & Elmslie

Uruguay, 648 H. Knight

Methyl Alcohol—

U. States, 20 brls. Stein Brs.

Belgium, 2 dms. "

Mica—

Ceylon, £25 W. M. Smith & Sons

E. Indies, 180 "

Naphthaline—

Germany, 36 pkgs. Fleming's Oil Co.

Ochre—

Spain, 16 brls. Middleton S. S. Wf. Co.

France, 27 W. Harrison & Co.

Carthage, 29 C. Gee & Co.

Holland, 27 pkgs. Philipps & Graves

France, 1 ck. J. L. Lyon & Co.

" 50 brls. T. & W. Farnillie

Paraffin Wax—

U. States, 192 brls. H. Hill & Sons

Germany, 7 cs. T. H. Lee

U. States, 6,809 Anglo-American Oil Co.

Phosphate Rock—

W. Indies, 350 t. G. M. Bauer

U. States, 1,200 Wylie & Gordon

Phosphoric Acid—

Germany, 20 pkgs. Berger, Kahler & Co.

Pitch—

N. Russia, 225 cks. Fellows, Morton & Co.

France, 36 cks. Poth, Hille & Co.

Germany, 64 brls. C. B. Leighton

Plumbago—

Ceylon, 36 brls. R. G. Hall & Co.

" 60 L. & I. D. Jt. Co.

Cochin, 39 cks. Parry & Co.

Germany, 140 cs. Prop. Scott's Wf.

Potash—

France, 40 c. Petri Brs.

Potassium Bicarbonate—

Holland, 10 cks. A. & M. Zimmermann

Potassium Carbonate—

France, 90 c. J. A. Reid

Belgium, 20 "

Potassium Chlorate—

Sweden, 9 pkgs. Tegner, Price & Co.

Potassium Hydrate—

France, 8 pkgs. Spies Brs. & Co.

Potassium Oxalate—

Holland, 5 pkgs. G. Rahn & Co.

Potassium Prussiate—

Holland, 2 pkgs. Skilbeck Brs.

Germany, 5 H. Lambert

Potassium Sulphate—

France, 8 pkgs. Mead, Son, & Co.

" 50 Petri Brs.

Pyrites—

Spain, 2,200 t. C. Tennant, Sons & Co.

" 580 C. L. Vasey & Co.

Rosin—

U. States, 308 brls. Prod. Brokers Co.

" 3,500 G. Nutter & Co.

Germany, 6 Magee, Taylor & Co.

Saltpetre—

Germany, 40 cks. J. Hall & Son

" 60 Drolenvaux & Bremner

" 20 T. Merry & Son

" 55 C. Wimbly & Co.

" 20 P. Hecker & Co.

Soda—

Holland, 260 c. City Coml. Wf. Ltd.

Sodium Acetate—

France, 15 pkgs. H. Lorenz

Sodium Hypsulphite—

Holland, 14 pkgs. F. Boehm

" 215 Beresford & Co.

Sodium Nitrite—

Belgium, 8 pkgs. Arnati & Harrison

Sodium Phosphate—

Germany, 5 pkgs. Kirkpatrick & Co.

Starch—

Belgium, 321 pkgs. T. H. Lee

" 30 Leach & Co.

" 1 F. Rosenthal & Co.

Holland, 100 Carey & Sons

" 1,108 Little & Johnston

" 4 Magee, Taylor, & Co.

" 81 Taylor Brs

Germany, 45 Philipps & Graves

" 81

U. States, 3,970 Horne & Co.

" 100 Oswego Co.

" 500 C. Tennant, Sons, & Co.

" 300 Beck & Pollitzer

Stearine—

France, 50 bgs. H. Hill & Sons

" 130 Walbaum & Tosetti

" 200 Prop. Chmbln's Wf.

Sydney, 45 pkgs. Ross & Deering

Belgium, 139 bgs. H. Hill & Sons

France, 268 Palmer & Co., Ltd.

Tallow and Stearine—

U. States, 20 cks. Allan Brs. & Co.

Tartaric Acid—

France, 20 pkgs. B. & F. Wf Co

Holland, 17 F. C. Devon & Co

Toluol—

Holland, 5 pkgs. J. Owen

Turpentine—

U. States, 1,000 brls. Prod. Brokers Co., Ltd.

Ultramarine—

Holland, 5 cs. G. Rahn & Co.

" 5 Hernu, Peron, & Co.

" 1 pkgs. Philipps & Graves

" 4 cks. Spies Brs. & Co.

Germany, 32 T. Hamilton

" 2 Magee, Taylor, & Co.

Holland, 4

Belgium, 3 pkgs. W. Harrison & Co.

Varnish—

Belgium, 3 pkgs. Wilcox & Co.

U. States, 25 Beck & Pollitzer

France, 2 Allan Brs. & Co.

" 12 Flageolet & Co.

Verdigris—

France, 2 pkgs. C. F. Gerhardt

Vermilion—

Germany, 2 cs. Philipps & Graves

White Lead—

Germany, 46 cks. M. Ashby, Ltd.

" 4 J. Matton

" 22 H. Lambert

" 28 Burrell & Co.

" 28 W. A. Rose & Co.

" 46 Randall Brs.

" 13 N. J. Fenner & Co.

France, 45 W. Harrison & Co.

Holland, 115 Spies Brs. & Co.

Belgium, 68 brls. J. L. Lyon & Co.

Wolfram Ore—

Queensland 5 t. H. Bath & Son

Wood Pulp—

Holland, 85 pkgs. Henderson, Craig & Co.

Sweden, 846 Moreton Cox Brs.

Norway, 80 W. G. Taylor & Co.

Germany, 240 " J. Waters

" 13 H. Johnson & Sons

" 30 W. Friedlander

Austria, 102

" 141 Tough & Henderson

Portugal, 200 L. Knoblauch

Zinc Oxide—

Germany, 115 cks. J. Matton

" 195 brls. M. Ashby Ltd.

Holland, 107

" 500 cks. Soundy & Sons

" 20 pkgs. Prprs. Dowgate

" 50 brls. Burrell & Co.

LIVERPOOL.

Week ending November 1st.

Asbestos—

Quebec, 5 bgs. J. Smith & Co.

Borate of Lime—

Antofagasta, 700 bgs.

Castor Oil—

Calcutta, 200 cs. Ralli Brs.

" 100

Marseilles, 48 brls.

Caustic Soda—

New York, 75 dms. J. P. Brunner

Chemicals (otherwise unclassified)

Lisbon, 3 pkgs.

Chrome Ore—

Ismid 98 t.

Cod Oil—

St. John's, Nfld, 77 cks. J. J. Langley

Hamburg, 24

" 5 brls.

Colours—

Bremen, 1 ck.

Cream of Tartar—

Marseilles, 5 cks.

Dyestuffs—

Algarrobbilla

Valparaiso, 27 bgs. A. W. Real

Argols

Oporto, 22 cks. German Bank of London

Cochineal

Teneriffe, 32 bgs. Canary Islands

" 14 Trading Co.

" 17 H. Amar & Co.

" 20 Sperling & Williams

" 20 A. R. Aushachen

" 15 K. Henderson & Co.

Gd. Canary, 7 Sperling & Williams

" 9 R. Henderson

Teneriffe, 8 Schatz & Co

Cutch

Rangoon, 20 cs. 980 bks.

Extracts

Marseilles, 200 brls.

Halifax, 400 cks. Bontcher, Bacon & Co.

Bordeaux, 100

Baltimore, 5,533 stks. J. W. Wilson

Carthage, 1,406 ps. Isaac & Samuel

" 474 T. Ruete & Co.

" 999 W. I. & P. S. S. Co.

Colon, 204 Widow Duranty & Son

Myrabolams

Bombay, 335 bgs. E. D. Sassoon & Co.

" 315

Shumac

Barcelona, 100 bgs.

Glucose—

New York, 700 brls.

Hamburg, 23 cks.

Iodine—

Valparaiso, 40 brls. A. Gibbs & Son

Manganese Ore—

Poti, 3,180 t.

Carrizal, 2,003

Nickel Sulphide—

Havre, 5 cks. Cunard S. S. Co., Ltd.

Nitrate—

Junin, 3,793 bgs. Bancode Chili

" 3,910 L. Ceballos Y. Co.

Ochre—

St. Nazaire, 53 cks.

Paraffin Wax—

Rangoon, 330 bks.

Phosphoric Acid—

Bremen, 12 cks.

Potash—

Dunkirk, 1 ck.

Rotterdam, 2 cs.

Pumice Stone—

Marseilles, 8 bgs.

Pyrites—

Huelva, 4,998 t. Matheson & Co.

" 1,981

Rosin—

New York, 15 brls.

Saltpetre—

Hamburg, 125 bgs. 24 cks. 10 brls.

Soap—

New York, 3 cs. Colgate & Co.

Marseilles, 4 G. G. Mackay

" 110 4 t. bxs.

Soapstone—

Bordeaux, 500 bgs. G. G. Blackwell

Tallow—

Baltimore, 250 tcs.

Colon, 1 bl. Widow, Duranty & Son

Sydney, 771 pkgs. Lever Brs

" 97

Tartar—

Bordeaux, 16 cks.

Havre, 4 Cunard S. S. Co., Ltd.

Tartaric Acid—

Rotterdam, 1 cs.

Turpentine—

Tampico, 300 cs. Jauffred & Garie

Savannah, 3,191 brls.

Ultramarine—

Rotterdam, 25 cs.

Hamburg, 10 12 cks.

Varnish—

Madeira, 3 dms. J. Martin & So

Verdigris—

Bordeaux, 5 cks.

Waste Salt—

Hamburg, 1,997 bgs.

Dunkirk, 101

White Lead—

Rotterdam, 52 cks.

Starch—		
Rotterdam,	40 cs.	
Hamburg,	152	
Antwerp,	20	
Sulphur—		
Hamburg,	1 ck.	
Sulphuric Acid—		
Rotterdam,	10 cks.	
Tannin—		
Hamburg,	4 cks.	
Tar Salts—		
Rotterdam,	4 cks.	
Tartar—		
Bordeaux,	2 cks.	
	1	J. & P. Hutchinson
Tartaric Acid—		
Rotterdam,	20 cks.	10 kgs.
Ultramarine—		
Hamburg,	20 cks.	
Wood Pulp—		
Rotterdam,	40 pcks.	
Drammen,	1,250 bls.	H. Raby & Mather
	316	W. H. Ingram
Wood Spirit—		
Hamburg,	8 dms.	
Zinc Sulphate—		
Rotterdam,	5 brls.	
Zinc White—		
Rotterdam,	5 cks.	

HULL.

Week ending November 3rd.

Albumen—		
St. Petersburg,	12 cs.	Wilson, Sons, & Co., Ltd.
Ammonia—		
New York,	30 pks.	Wilson, Sons, & Co., Ltd.
Aniline—		
Hamburg,	37 pks.	Wilson, Sons, & Co., Ltd.
Aniline Colours—		
Rotterdam,	1 ck.	W. & C. L. Ringrose
Barytes—		
Hamburg,	1 ck.	Bailey & Leatham
Rotterdam,	23	Hutchinson & Son
Antwerp,	58	Bailey & Leatham
		300 bgs.
Castor Oil—		
Antwerp,	12 cks.	Bailey & Leatham
Venice,	10 cs.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)		
Stettin,	1 ck.	Wilson, Sons, & Co., Ltd.
Amsterdam,	2 cs.	W. & C. L. Ringrose
Hamburg,	4 cks.	Wilson, Sons, & Co., Ltd.
Bari,	80 pks.	
Bremen,	3 cs. 1 ck.	Veltmann & Co.
Dunkirk,	12 cks.	Wilson, Sons, & Co., Ltd.
	6	
Antwerp,	16	53 pks. Wilson, Sons, & Co., Ltd.
Cod Oil—		
Drontheim,	27 brls.	Wilson, Sons, & Co., Ltd.
Colours—		
Bombay,	40 cs.	Wilson, Sons, & Co., Ltd.
Danzig,	5 cks.	
	17	W. & C. L. Ringrose
Gothenburg,	33 pks.	Wright, Dryer, & Co.
Stettin,	18 cks.	Wilson, Sons, & Co., Ltd.
Rotterdam,	3 cs. 16	8 bxs. 24 brls. Hutchinson & Son
	21	4 pks. W. & C. L. Ringrose
	21	Wilson, Sons, & Co., Ltd.
Antwerp,	7 brls. 9 pks.	
Hamburg,	1 cs.	F. Neidler
	4 cks.	Wilson, Sons, & Co., Ltd.
Cryolite—		
Copenhagen,	1 ck.	Wilson, Sons, & Co., Ltd.

Dyestuffs—		
Alizarine		
Rotterdam,	76 cks.	Hutchinson & Son
	7	W. & C. L. Ringrose
Myrabolams		
Bombay,	22,440 bgs.	
Shumac		
Trieste,	22 bls. 64 bgs.	Wilson, Sons, & Co., Ltd.
Palermo,	350 bgs.	
	750	
Farina—		
Stettin,	300 bgs.	Wilson, Sons, & Co., Ltd.
Ghent,	28	
Glucose—		
New York,	150 brls.	
Manure—		
Ghent,	500 bgs.	Wilson, Sons, & Co., Ltd.
Naphthol—		
Rotterdam,	2 cks.	Hutchinson & Son
Ochre—		
Hamburg,	4 cks.	Blundell, Spence, & Co.
Oxalic Acid—		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Phosphorus—		
New York,	2 cs.	Wilson, Sons, & Co., Ltd.
Pitch—		
Ghent,	31 brls.	Wilson, Sons, & Co., Ltd.
Amsterdam,	1 ck.	W. & C. L. Ringrose
Uleaborg,	20 brls.	
Plumbago—		
Bremen,	3 cks.	J. Pyefinch & Co.
Potassium Binoxalate—		
Rotterdam,	5 cks.	W. & C. L. Ringrose
Pumice Stone—		
Messina,	10 cs.	Wilson, Sons, & Co., Ltd.
	20 bgs.	
Rosin—		
Boston,	25 brls.	Wilson, Sons, & Co., Ltd.
Rotterdam,	8 cks.	Hutchinson & Son
Wilmington,	2 775 brls.	
Saltpetre—		
Hamburg,	4 cks.	Lofthouse & Saltmer
Antwerp,	135 bgs.	Wilson, Sons, & Co., Ltd.
Soap—		
Hamburg,	40 kgs.	Wilson, Sons, & Co., Ltd.
Bari,	50 cs.	
	53	
Starch—		
Ghent,	80 cs.	Wilson, Sons, & Co., Ltd.
Bremen,	1,957 cs.	Veltmann & Co.
Sulphur—		
Catania,	686 pks.	Wilson, Sons, & Co., Ltd.
	112 brls.	
Tallow—		
Boston,	2 tcs.	Wilson, Sons, & Co., Ltd.
Tar—		
Uleaborg,	4,010 brls.	
Turpentine—		
Wilmington,	900 brls.	
Varnish—		
Copenhagen,	1 cs.	Bailey & Leatham
Antwerp,	4 brls.	J. & T. Seddon
Waste Salt—		
Hamburg,	508 bgs.	Furley & Co.
White Lead—		
Rotterdam,	10 cks.	Hutchinson & Son
Ghent,	9	
Rotterdam,	28	W. & C. L. Ringrose
Wood Pulp—		
Helsingfors,	673 bls.	J. Good & Sons
	25	Furley & Co.
	100	Wilson, Sons, & Co., Ltd.
	94	66 pcls.
Halmstad,	40	

GLASGOW.

Week ending November 8th.

Aniline—		
Rotterdam,	8 cs. 21 brls.	J. Rankine & Son
Aniline Salt—		
Rotterdam,	10 cks.	J. Rankine & Son
Asbestos—		
Montreal,	200 bgs.	
Barytes—		
Rotterdam,	45 pks.	
Bone Meal—		
Bombay,	3,000 bgs.	
Castor Oil—		
Marseilles,	322 brls. 143 pks.	
Antwerp,	57 cks.	
Chemicals (otherwise undescribed)		
Hamburg,	1 cs.	
Colours—		
Rotterdam,	7 cks. 1 cs.	J. Rankine & Son
Hamburg,	3	4
Rotterdam,	1	6
Antwerp,	15	pks.
Cream of Tartar—		
Marseilles,	3 cks.	
Dyestuffs—		
Rotterdam,	83 cks.	J. Rankine & Son
	59 pks.	
Extract		
Antwerp,	1 cs.	
Myrabolams		
Bombay,	1 954 bgs.	
Fluor Chrome—		
Rotterdam,	1 bx.	J. Rankine & Son
Glucose—		
New York,	310 brls.	
Ochre—		
Marseilles,	211 brls.	
New York,	265	
Oxalic Acid—		
Rotterdam,	6 cks.	J. Rankine & Son
Pitch—		
Antwerp,	8 cks.	
Potash—		
Hamburg,	66 cks.	
Rosin—		
New York,	750 brls.	
Saltpetre—		
Hamburg,	100 kgs. 20 cks.	
Soap—		
Marseilles,	8 cs.	
Sodium Nitrate—		
Iquique,	12,504 bgs.	
Starch—		
Antwerp,	70 cs. 5 bgs.	
Rotterdam,	40	J. Rankine & Son
Stearine—		
Rotterdam,	23 cks.	J. Rankine & Son
Sulphate of Barytes—		
Antwerp,	50 bgs.	
Tallow—		
New York,	150 tcs.	
Tar—		
New York,	899 brls.	
Tartaric Acid—		
Marseilles,	32 cks.	
Waste Salt—		
Hamburg,	1,091 bgs.	
White Lead—		
Rotterdam,	55 cks.	J. Rankine & Son
Whiting—		
Dieppe,	134 bgs.	
Wood Pulp—		
Hamburg,	300 bls.	
Christiania,	340	

TYNE.

Week ending November 3rd.

Alum Earth—		
Hamburg,	45 cks.	Tyne S. S. Co.
Aluminium—		
Antwerp,	1 cs.	Tyne S. S. Co.
Barytes—		
Rotterdam,	600 bgs.	Hoyle, Robson, Barnett, & Co.
Antwerp,	450	Tyne S. S. Co.

Carbonic Acid Gas—

Rotterdam,	50 tubes.	Tyne S. S. Co.
Cod Oil—		
Bergen,	10 brls.	
Limestone—		
Hamburg,	2 cs. 1 crt.	Tyne S. S. Co.
Rosin—		
Charleston,	2,728 brls.	
Soap—		
Rotterdam,	2 cs.	Tyne S. S. Co.
Starch—		
Rotterdam,	116 cs.	Tyne S. S. Co.
Stearine—		
Rotterdam,	26 bls.	Tyne S. S. Co.
Antwerp,	13 bgs.	
Sulphur Ore—		
Pomaron,	1,004 t.	United Alkali Co.
White Lead—		
Antwerp,	32 cks.	Tyne S. S. Co.

GOOLE.

Week ending October 31st.

Alkali—		
Hamburg,	17 cks.	
Alum—		
Rotterdam,	86 pks. 16 bgs.	
Antimony—		
Boulogne,	5 cks.	
Barytes—		
Rotterdam,	22 cks.	
Caoutchouc—		
Boulogne,	6 cks.	
Colours—		
Ghent,	3 cks.	
Dyestuffs—		
Alizarine		
Rotterdam,	137 pks.	
Logwood		
Belize,	508 t.	
Dyestuffs (otherwise undescribed)		
Rotterdam,	176 pks.	
Boulogne,	9 cks. 28 cs.	
Farina—		
Hamburg,	1,400 bgs.	
Delfsdyhl,	350	
Glucose—		
Calais,	200 bgs.	
Potash—		
Hamburg,	4 cks.	
Dunkirk,	11	
Calais,	4 dms.	
Potassium Chloride—		
Hamburg,	610 bgs.	
Pyrites—		
Huelva,	1,404 t.	
Saltpetre—		
Hamburg,	53 cks.	
Sodium Silicate—		
Rotterdam,	4 cks.	
Starch—		
Antwerp,	80 cs.	
Yarnish—		
Boulogne,	6 cks.	
Waste Salt—		
Hamburg,	500 bgs.	

GRIMSBY.

Week ending November 3rd.

Albumen—		
Hamburg,	12 cks.	
Barytes—		
Hamburg,	22 cks.	
Caoutchouc—		
Hamburg,	4 cs.	
Chemicals (otherwise undescribed)		
Hamburg,	7 cs. 2 cks.	
Coal Tar Dyes—		
Antwerp,	61 pks.	
Hamburg,	11	
Colours—		
Antwerp,	3 cks.	
Hamburg,	20	6 pks.
Dyestuffs (otherwise undescribed)		
Dieppe,	30 cks.	
Farina—		
Hamburg,	150 bgs.	
Starch—		
Antwerp,	16 cs.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			Coal Products (otherwise undes.)—			Odessa, 2 t.			Ancona, 35		
Week ending November 7th.			Melbourne, 25 dms.			Leighorn, 15			Antwerp, 18		
			Copper Sulphate—			Victoria, B.C., 3			Baltimore, 285		
Alkali—			Adelaide, 2 t.			Genoa, 1 5			Barcelona, 332		
Natal, 2 c.			Trepport, 10			Montreal, 3 15			Bombay, 110		
E. London, 4			Wellington, 1			Riga, 1 5			Bordeaux, 17		
Alum—			Cream of Tartar—			Konigsberg, 1 10			Boston, 162		
Rabat, 3 t. 14 c.			Fremantle, 15 c.			Amsterdam, 1 5			B. Ayres, 30		
Alum Cake—			Melbourne, 2 t.			Stettin, 1			Calcutta, 173		
Melbourne, 5 t.			Disinfectants—			Venice, 10			Callao, 35		
Ammonia (Liquid)—			Cape Town, 135 pkgs. 40 cks.			Galatz, 1 t.			Catania, 30		
M. Video, 10 c.			Colombo, 11 c.			Piræus, 1 t.			Chicago, 473		
Urdingen, 10 t. 6			Sydney, 75 dms.			Patras, 3 c.			Christiania, 10		
Ammonium Carbonate—			E. London, 9 cs.			Trieste, 1 17			Fiume, 15		
St. Petersburg, 20 t.			Manure—			Bombay, 4 10			Galatz, 1,039		
Ammonium Chloride—			Landerneau, 382 t. 19 c.			Leghorn, 10			Genoa, 13		
Sydney, 1 t. 1 c.			Phosphoric Acid—			Konigsberg, 14			Hamburg, 77		
Constantinople, 2 10			New York, 1 t. 12 c.			Ibrail, 10			Havre, 15		
Rabat, 3			Potassium Chlorate—			Genoa, 5			Honolulu, 20		
Genoa, 2 7			Madras, 24 kgs.			Venice, 5			Ibrail, 68		
Adelaide, 5			Hamilton, 5 c.			Kurrachee, 2			Jaffa, 59		
Ammonium Sulphate—			Rio de Janeiro, 10			Barcelona, 1			La Guayra, 35		
Marseilles, 50 t.			Bombay, 9			Rigo, 5			Leghorn, 69		
Rotterdam, 65			Potassium Cyanide—			Ammonium Sulphate—			Lisbon, 45		
Borax—			Auckland, 5 t. 19 c.			London, Ont., 108 bgs.			London, Ont., 65		
Copenhagen, 18 c.			Potassium Prussiate—			Alicante, 20 t. 13 c.			Melbourne, 134		
Christiania, 1 t. 2			Bombay, 6 c.			Baltimore, 25 19			Montreal, 10		
Hamburg, 12 cks.			Saltpetre—			Gd. Canary, 10 5			Newport News, 115		
Melbourne, 5			Ghent, 2 t. 1 c.			New York, 125 6			New York, 1,137		
Adelaide, 5			Hamilton, 1			Montreal, 5 2			Oporto, 105		
Carbolic Acid—			Sheep Dip—			Barcelona, 5 6			Penang, 20		
Antwerp, 4 pkgs.			E. London, 12 t. 12 c. 500 drs.			Bordeaux, 4 17			Pedang, 40		
Bombay, 10 c.			Invercargill, 800 cs.			Philadelpia, 51			Philadelphia, 85		
Carbonic Acid Gas—			Santa Cruz, 1 t. 10 c.			Las Palmas, 1			Pt. Natal, 510		
Wellington, 6 t. 12 c.			Gallegos, 32 cs. 10 cks.			Honolulu, 101 3			Rangoon, 55		
Caustic Soda—			Cape Town, 950			Valencia, 204 15			Rotterdam, 298		
Gulfport, 2 c.			Pt. Elizabeth, 1,250			Arsenic—			Rouen, 15		
Algoa Bay, 1 t. 13			E. London, 500			M. Video, 17 c. 3 q.			San Francisco, 200		
E. London, 15			Cape Town, 30 dms.			Algoa Bay, 14 bls.			Salonica, 62		
Melbourne, 1 8			Jamaica, 8 c.			Constantinople, 1 cs.			San Sebastian, 132		
Chemicals (otherwise undes.)—			Algoa Bay, 25 t.			Bleaching Powder—			Santo Domingo, 56		
Rotterdam, 5 cs.			Wellington, 68 pkgs.			Baltimore, 80 cks.			Santander, 3		
Galata, 1 t. 17 c.			Slag—			Bilbao, 29			Seville, 130		
Stamboul, 5			Stettin, 150 t.			Boston, 891			Singapore, 10		
Natal, 2			Soda—			Callao, 7 6 cs.			Sourabaya, 75		
Wellington, 7			Halifax, 1 c.			Genoa, 20			Stettin, 45		
Citric Acid—			Alexandria, 1			Leghorn, 10			Sydney, 4		
Bombay, 1 cs.			Soda Ash—			Montreal, 142			Talcabuan, 180		
St. Petersburg, 3 t. 10 c.			Auckland, 13 c.			Naples, 37			Toronto, 150		
Riga, 3			Singapore, 21 t. 16 c.			Newport News, 267			Trinidad, 4		
Cape Town, 1			Colombo, 20 14			New York, 832			Valparaiso, 63		
Toronto, 11			Stockholm, 10 15			Philadelphia, 164			Vera Cruz, 5		
Cologne, 1 ck.			Adelaide, 2 6			Piræus, 14			Valencia, 10		
Amsterdam, 2 cs.			Natal, 3 5			Pt. Said, 100 brls.			Vigo, 4		
Coal Products—			Sodium Bicarbonate—			San Sebastian, 56			Yokohama, 150		
Alizarine			Townsville, 1 t. 10 c.			Seville, 11			Chemicals (otherwise undes.)—		
Bombay, 50 kgs.			Hamburg, 1			Boracic Acid—			Manila, 1 cs.		
Aniline			Strontium Nitrate—			Montreal, 1 t. 3 c. 1 q.			Marseilles, 15 c.		
Hamburg, 2 kgs.			Bombay, 16 c.			Rotterdam, 3 2			Hamburg, 15		
Anthracene			Tartaric Acid—			Antwerp, 14 t. 6 c.			Copenhagen, 9		
Cologne, 65 cks.			Melbourne, 1 t. 12 c.			Borax—			Smyrna, 12		
Benzol			Algoa Bay, 2 kgs.			B. Ayres, 2 t. 9 c.			Philadelpia, 13 t. 2		
Stockholm, 5 cks.			Melbourne, 1 5			Odessa, 3 4			Genoa, 1 5		
Rotterdam, 46 dms.			LIVERPOOL.			Hamburg, 6 6			China Clay—		
Boulogne, 25			Week ending November 7th.			Constantinople, 1 4			Boston, 500 t.		
Greosote			Acetic Acid—			Ibrail, 1 1			Lisbon, 40 9 c		
Dieppe, 23,500 galls.			Lisbon, 1 t. 9 c. 2 q.			Piræus, 4 5			Maranham, 6 14		
Grosol			Rio de Janeiro, 3 t. 1 c.			Rotterdam, 12 11			Montreal, 324 10		
Naphtha			Sydney, 1			Genoa, 5 7			New York, 193 bgs.		
Boulogne, 22 dms.			Valparaiso, 3 14			Calcium Chloride—			Chrome Ore—		
Boulogne, 4 cks.			Alexandretta, 5 19			Sydney, 5 t.			Rotterdam, 11 cks.		
Calais, 50			Portland, O., 12 9 2 q.			Colombo, 2			Coal Products—		
Naphthaline			Dedegatch, 1 7			Caoutchouc—			Aniline Colours		
Bilbao, 5 pkgs.			Smyrna, 7 1			Braila, 7 pkgs.			Shanghai, 21 cs.		
Brussels, 15 cks.			Pelotas, 1 5			B. Ayres, 2 cs.			Aniline Oil		
Paraffin Wax			Melbourne, 5 3			Valparaiso, 3 bls.			Barcelona, 26 cks.		
Libau, 25 bgs.			Cadiz, 3 8			Carbolic Acid—			New York, 2 brls. 21 dms. 37 cs.		

Copper Sulphate—

Genoa,	7 t.	8 c.	1 q.	£110
Santos,	1	9	3	23
Bordeaux,	29	12	3	422
Galatz,		12		9
Paris,	4	19	1	75
Catania,	8	3		112
Melbourne,	15			234
Talcahuano,	1	7		21
Penang,	1			16
Delhi,	10	1	1	150
Bari,	9	9	1	36
Calcutta,	5			70
Nantes,	11	1	3	155

Disinfectants—

B Ayres	14 ca.	£50
Calcutta,	4 t.	92

Dried Blood—

Las Palmas,	2 t.	3 q.	£17
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Gypsum—

New York,	34 t.	13 c.	£128
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Lime—

Pernambuco,	20 puns.		
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Magnesia—

Havre,	51 ca.		
New York,	12		
San Francisco,	5 cks.		
Valparaiso,	4		

Magnesium Sulphate—

Montreal,	25 brls.		
Parnahyba,	1 ck.		
Rio de Janeiro,	100 kgs.		

Manure—

Cullera,	50 t.	1 q.	£127
Valencia,	61	5 c.	178
Tarragona,	8	2	35

Muriatic Acid—

Maceio,	4 c.	£2
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Nickel—

Valparaiso,	1 ca.		
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Nitrate of Iron—

Montreal,	4 t.	5 c.	2 q.	£43
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Ochre—

New York,	25 cks.		
Valparaiso,	40 brls.	60 kgs.	

Paint—

Amsterdam,	10 kgs.	6 dms.	
Belize,	72		
Bombay,	15		
Brass,	17		1 bx.
Bremerhaven,	1		7 cks.
B. Ayres,			28
Cadiz,	12		9
Callao,	10		6
Cape Town,	8		
Coquimbo,	24 ca.	17	
Havana,		3	
Hong Kong,	200	80	
Kingston, Jam.,	2		10 bxs.
Kurrachee, 1 brl.	72		
Lagos,		1	
Leghorn,		1	
Manila,	3		2
M. Video,		10	
New York,	1		7
Para,			21
Pelotas,	75		
Philadelphia,	16		
Pt. Louis,	18		1
Punta Arenas,	40		6
Rio Nunez,		1	
St. Domingo,		8	
Sierra Leone,	182		2
Talcahuano,		115 brls.	12
Valparaiso,		71	6
Vera Cruz,	75		

Painters' Colours—

Accra,		1 ca.	
Baltimore,	306 cks.		
Barranquilla,		40	
Benin,	10	60 kgs.	
Boston,	2		20 brls.
B. Ayres,			50
Callao,	5 dms.	196	
Cape Town,	51		
Gibraltar,	15		
Havana,	14		
Hong Kong, 5 tcs.			
Iquique,		10	
Lisbon,	2		50
Madras,			
Montreal,			
New York,	50		9
Para,	6 tcs.	35	22
Rosario,			1
Trinidad,			
Valparaiso,		200	830
Vera Cruz,	3		6
Victoria, W. C.,		70	

Paraffin Wax—

Rosier,	10 ca.		
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Phosphates—

Hamburg,	56 t.	2 c.	1 q.	£240
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Phosphate Rock—

Demerara,	100 t.			£325
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Phosphorus—

Tampico,	5 ca.			£52
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Potashes—

B. Ayres,	2 t.			£33
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Potassium Bichromate—

Rio de Janeiro,	3 c.	3 q.		£9
B. Ayres,	19	3		42
Vera Cruz,	3			8

Potassium Carbonate—

New York,	15 t.	13 c.		£341
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Potassium Chlorate—

Santos,	2 t.			£123
Rotterdam,	1	3 c.		77
Hamburg,				62
Riga,	2	10		141
Vera Cruz,	3 ca.			50
Hiogo,	5			236
Philadelphia,	1	5		72
New York,	14			716
Medellin,	1	2 q.		5
Boston,	2	10		150
Gothenburg,	5			241
Antwerp,				14
Lisbon,				16
Copenhagen,	10			31

Potassium Prussiate—

Constantinople,	2 c.	1 q.		£15
Montreal,	2 t.	18		250

Potassium Stannate—

Bombay,	1 t.	7 c.	1 q.	£100
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Quicksilver—

Havana,	6 brls.			
Rio de Janeiro,	50			

Rosin—

Hamburg,	10 brls.			
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Salt—

Accra,	3 t.			
Akassa,	300			
Antwerp,	200			
Barbadoes,	235			
Bata,	12			
Belize,	10			
Boma,	6			
Bombay,			2 cks.	
Boston,	550			
Calcutta,	2,076		2 c.	
Callao,			13	
Cameroon,	79		4	
C. C. Castle,	30			
Conakry,	40			
Copenhagen,	192			
Coquimbo,	310			
Cape Town,	25			
Dubrika,	200			
Guayaquil,	1	1		
Hamburg,	8			
Lagos,	100			
Landana,	9			
Melbourne,		15		
M. Video,	6	13		
Montreal,	545	19		
Muculla,	5	7		
Mussera,	20			
N. castle, NSW,	200			
N. Orleans,	300			
Ne'port News,	1,010			
Opobo,	30			
Rangoon,	2,049		4 cs.	
Rotterdam,	215			
San Juan,		25		
Savannah,	2,092			
Sydney,	600			
Tubon,	7	10 c.		
Valparaiso,	100			

Salt Cake—

Leghorn,	30 t.			£22
Baltimore,	144			348
Philadelphia,	60	12 c.		121
Antwerp,	100	4		208
New York,	75	3	1 q.	92
Newport News,	31			50

Saltpetre—

Piræus,	7 t.	10 c.		£154
Cartagena, N.G.,		8		9
Cardenas,		3		4
Callao,	1	13	2 q.	38

Sheep Dip—

B. Ayres,	30 t.	16 c.		£631
Punta Arenas,	9			250

Soap—

Accra,		5 cs.		
Alexandria,		5 bxs.	26	20 kgs.
Algoa Bay,	1,598		136	
Amsterdam,	529		260	
Antwerp,			124	11 pkgs.
Barbadoes,	302			
Batanga,	55			
Bata,	50			
Batavia,	2,000			

Belize,

Benin,	300			
Boma,	100			
Bombay,	150			
Bombay,	133			
Cabenda,	2.0			
Calcutta,			250 bdls.	
Callao,	2 cks.			
C. C. Castle,	30			
Cape Town,	1,950	50		
Colon,	500			
Copenhagen,		39		
Curacao,	581			
Dominica,	102			
E. London,	800		514	
Genoa,	50			
Gibraltar,	50			
Guayaquil,	705		100	
Hamburg,	1,600			
Kinsembe,	100			
Kurrachee,	7			
Lagos,	50			
Landana,	150			
Lanzarote,	75			
Las Palmas,	260			
Loango,	50			
Lucca,	302			
Macassar,	500			
Madras,		40		
Manaos,	530			
Matadi,	100			
N. York, q cks,	1,560		44	
Old Calabar,	400			5 dms.
Penang,		11		
Piræus,	9		13	
Pt. Elizabeth,	612			
Providence,	1,332			20 tcs.
Quebec,		4		
Rangoon,	400			
Rosario,				
Rotterdam,		360		50 dms.
St. John's, Nfld,	430			
Lucia,	62			
Samanco,	62			
Samarang,				
Sava'nahla Mar,	110			
Sette Camme,	20			
Sierra Leone,	80			
Shanghai,	650			
Sydney,	1,850		462	
Surinam,	70			
Teneriffe,	150			
Talcahuano,	5			
Trinidad,	1,942			
Valparaiso,	567		4	
Victoria, NSW.,	40			
Zanzibar,	2,000			

Soda Alkali—

Accra,	10' cks.			
Barcelona,		100 brls.		
Boston,	35			
B. Ayres,	20			
Marseilles,	10			
Melbourne,	40		5 dms.	
Montreal,	222			
Oporto,		23		
Piræus,	42			
Santa Domingo,			70 bls.	
Smyrna,	50			
Toronto,	170			
Valencia,	119			

Soda Ash—

Alexandria,		75 brls.		
Antwerp,	584 bgs.			
Baltimore,	1,779	76 cks.	198 bxs.	
Batoum,	300			
Bombay,				
Boston,	426		86 brls.	
B. Ayres,			150	
Calcutta,	64			
Chicago,	520			
Christiania,	40			
Dunedin,	5			
Gothenburg,	149			
Hamburg,	20			
Havana,	3			
Hong Kong,	80			
Lisbon,	30			
Mauritius,	19			
Montreal,	1,580	369	224	10 tcs.
N. Orleans,	112			
Newport News,	667			
New York,	2,703			
Oporto,		20	10	
Philadelphia,	2,534		703	165
Rio de Janeiro,	100			
Smyrna,	50	100		
Valparaiso,	250			
Zarate,		11	15	

Soda Crystals—

Alexandria,	120 brls.			
Barcelona,		6 tcs.		
Boston,	456			
Calcutta,	28			
Montreal,		592 kgs.	220 cks.	

Philadelphia,

Santa Domingo,	134	105	711	
Smyrna,	100			
Valparaiso,	50	120 bgs.	30	

Sodium Arseniate—

Oporto,	5 cks.			
---------	--------	--	--	--

Sodium Biborate—

Hamburg,	127 cks.			
Montreal,	35 brls.			

Sodium Bicarbonate—

Sodium Bicarbonate -	
Algoa Bay.	150 kgs.

MANCHESTER.

Week ending November 8th.

Ammonium Carbonate—

Antwerp, 1 ck. 15 kgs.

Aniline Salts—

Barcelona, 20 cks.

Carbolic Acid—

Paris, 118 btl. 1 cs.

Rotterdam, 40 cks.

Colours—

Rouen, 2 cks.

Creosote—

Rotterdam, 6 cks.

Extracts—

Rotterdam, 6 cks.

Rouen, 10

Logwood—

Alexandria, 67 bgs.

Paraffin Scale—

Antwerp, 14 cks.

Paraffin Wax—

Barcelona, 160 bgs.

Pitch—

Rotterdam, 207 t.

Rouen, 400

Sodium Arseniate—

Rotterdam, 2 brls.

Rouen, 10

Sodium Biarseniate—

Rouen, 4 brls.

Sodium Bicarbonate—

Barcelona, 75 kgs.

Tallow—

Rotterdam, 5 cks.

Tar Oil—

Antwerp, 10 brls.

Rotterdam, 17 dms.

HULL.

Week ending November 3rd.

Ammonium Sulphate—

Bordeaux, 100 bgs.

Dunkirk, 100

Hamburg, 992

Benzol—

Rotterdam, 12 dms.

Bleaching Powder—

Bremen, 2 cks.

Boston, 100 pkgs.

New York, 55

Wasa, 6

Borax—

Riga, 11 cks.

Wasa, 1

Caustic Soda—

Helsingfors, 2 cs.

Wyburg, 21 cks.

Chemicals (otherwise undescribed)

Antwerp, 4 cks 7 cs.

Amsterdam, 8 pkgs.

Abo, 10

Bremen, 10

Bordeaux, 10

Christiania, 14

Copenhagen, 11

Danzig, 11

Gothenburg, 70

Helsingfors, 20

Hartingen, 20

Hamburg, 5

New York, 140

Norrköping, 6

Riga, 147

Rotterdam, 60

St. Petersburg, 27

Stettin, 4

Wasa, 48

Wyburg, 3

Cottonseed Oil—

Antwerp, 124 c.

Amsterdam, 42

Bremen, 68

Copenhagen, 101

Hamburg, 607

Norrköping, 68

Rotterdam, 1,441

Stavanger, 41

Stockholm, 200

Stettin, 134

Dyestuffs (otherwise undescribed)

Christiania, 2 cks.

Danzig, 6

Hamburg, 5 cs.

Riga, 1

St. Petersburg, 10

Stettin, 62 bgs.

Linseed Oil—

Boston, 126 c.

Bergen, 27

Christiania, 226

Constantinople, 70

Copenhagen, 7

Drontheim, 17

Hamburg, 144

New York, 210

Stavanger, 41

Manure—

St. Petersburg, 5 t.

Stettin, 348

Naphtha—

Dunkirk, 26 brls.

Ochre—

Amsterdam, 5 cks.

Painters' Colours—

Antwerp, 23 cks. 5 cs. 199 pkgs.

Amsterdam, 28 dms.

Abo, 4

Bremen, 14

Boston, 81

Christiania, 18

Gothenburg, 2

Ghent, 9

Helsingfors, 11

Hartingen, 4

Hamburg, 54

New York, 50

Rouen, 11

Rotterdam, 11

Stettin, 31

Wasa, 5

Pitch—

Antwerp, 121 t.

Christiania, 43 kgs.

Dunkirk, 85

Salt—

Calcutta, 650 t.

Cape Town, 5

Soap—

Antwerp, 9 cs.

Bremen, 1

Bergen, 9

Tallow—

Abo, 19 cks.

Gothenburg, 8

Rotterdam, 22

Wasa, 158

Tar—

Antwerp, 24 cks.

Copenhagen, 5

Danzig, 5

Helsingfors, 200

Hartingen, 13

Varnish—

Antwerp, 9 cks.

Amsterdam, 1 cs.

Danzig, 2

Hamburg, 24

St. Petersburg, 1

Whiting—

Amsterdam, 30 cks.

GLASGOW.

Week ending November 8th.

Acetic Acid—

New York, 1 t. 1/2 c.

Ammonium Sulphate—

Italy, 10 t. 3 3/4 c.

Spain, 223 14 3/4

Bleaching Powder—

Bombay, 4 t. 2 3/4 c.

Caustic Soda—

New York, 10 t. 4 3/4 c.

Coal Products—

Pitch

New York, 13 t. 10 3/4 c.

Italy, 88 9

Antwerp, 223

Amsterdam, 21

Dieppe, qty.

Spain, 154 4 3/4

Tar

Bombay, 166

Coal Tar Products (otherwise un-

described)

Rotterdam, 9 dms.

Dried Blood—

Rouen, 10 t. 2 1/2 c.

Dyestuffs—

Alizarine

Montreal, 10 1/4 c.

Extract

Montreal, 69 t. 12 3/4 c.

Spain, 1 11

Fustic Extract

Montreal, 12 t. 13 3/4 c.

Logwood

Oporto, 2 t. 5 c.

Montreal, 9 9 3/4

Sumac Extract

Spain, 2 t. 17 3/4 c.

Dyestuffs (otherwise undescribed)

Montreal, 5 t. 7 1/2 c.

Farina—

Oporto, 2 t. 10 c.

Linseed Oil—

Italy, 1 t. 14 3/4 c.

Curacao, 2 6 1/2

Montreal, 26 1 1/4

Magnesium Sulphate—

Bombay, 36 t. 10 3/4 c.

Paint—

New York, 8 t. 7 1/2 c.

Chili, 107

Curacao, 11 7 1/2

Painters' Colours—

New York, 4 dms.

Paraffin Wax—

Italy, 19 t. 6 3/4 c.

Nantes, 7 3/4

B. W. Indies, 1 15

Antwerp, 1 4 3/4

Spain, 45 17 3/4

Bordeaux, 10 4 1/2

Phosphoric Acid—

B. W. Indies, 1 t. 14 3/4 c.

Potassium Bichromate—

Italy, 29 t. 4 1/4 c.

Antwerp, 9 10 1/2

Bombay, 5 1/2

Rotterdam, 12 cks.

Rouen, 15 t. 13 1/4

Spain, 41 7 3/4

Potassium Pru slate—

Yokohama, 10 c.

Rosin Oil—

Amsterdam, 18 brls.

Slag—

Rotterdam, 499 t.

Soap—

New York, 6 t. 10 c.

Bombay, 2 12 3/4

Curacao, 1 8

Sodium Bichromate—

Italy, 38 t. 11 c.

Bombay, 1 13

Rouen, 10 2

Spain, 17 12 3/4

Sodium Phosphate—

New York, 5 t. 4 c.

Stearine—

B. W. Indies, 5 t. 13 3/4 c.

Sulphuric Ether—

Halifax, 60 gls.

Tallow—

Oporto, 1 t. 1 c.

Rotterdam, 7 3

Varnish—

Bombay, 200 gls.

White Lead—

Oporto, 11 t. 11 c.

Montreal, 10 3 3/4

TYNE.

Week ending November 3rd.

Alkali—

Hamburg, 11 t. 12 c.

Christiania, 50 1

Antofagasta, 5 6

Odense, 20

Rotterdam, 13 6

Alum—

Rotterdam, 10 t. 6 c.

Ammonium Chlorate—

Barcelona, 9 t. 9 c.

Antimony—

Antwerp, 3 t.

Hamburg, 2

Barcelona, 1

Barytes—

Hamburg, 23 t.

Rotterdam, 55

Bleaching Powder—

Antwerp, 5 t. 4 c.

Hamburg, 117 17

Christiania, 40 4

Hartingen, 10 3

Genoa, 17 2

Gothenburg, 1 5

Rotterdam, 28

Copenhagen, 26 9

Oscarshamn, 20 2

Lisbon, 5 1

Terneuzen, 5 9

Drontheim, 10 3

Caustic Soda—

Antwerp, 2 t.

Hamburg, 16 17 c

Galatz, 17 1

Genoa, 405 18

Naples, 7 5

Montreal, 14 9

Christiania, 4 18

Barcelona, 111 3

Copenhagen, 4 18

Seville, 151 6

Terneuzen, 3 6

Colours—

Gothenburg, 132 lbs.

Litharge—

Hamburg, 1 t. 3 c.

Montreal, 28 7

Lisbon, 2 4

Magnesia—

Hamburg, 1 t. 15 c.

Genoa, 11

Barcelona, 15 6

Odense, 15

Manure—

Genoa, 230 t. 1 c.

Ochre—

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THE SALT TRADE.

THE cry has frequently been raised that the salt trade is
declining because the shipments from Liverpool are on
the decrease. Though this fact cannot be considered a proof
of the decline of the trade, it is not exactly encouraging to
contemplate the shipments for the past month, despite the
fact that a good deal of salt now goes away from the Teeside
instead of from Liverpool. The shipments of white salt
during the past month, as compared with the exports during
the last ten years, were almost the smallest on record. The
smallest shipment was in 1893, and this year is larger only by
some 3,000 tons. In 1885 the shipments were 88,536 tons for
the month, this year they were 41,235 tons, or less than half.
This decrease is principally attributed to the small shipments
to the East Indies. In India, also, though the consumption of
salt is on the increase, it is a notable fact that it is the home
product that is going into consumption, to the detriment of
the imported article.

There is therefore but little prospect or any improvement
in the shipments to this quarter, especially in the face of the
Hamburg competition. This is an unpleasant prospect, as
the largest shipments of salt are to the East Indies. In the
returns for the past month there is evidence of a decided
increase in the quantity of white salt taken by Belgium,
though the reason for this is not readily apparent. The
largest amount of rock salt was also taken by the same
country, the figures for the white and rock salt respectively
being 1,308 and 1,765 tons.

Though there is no reason to believe that the increased
shipments to Belgium will be maintained, it is not unlikely
that there may be an improvement in the quantities sent to
Australia, New Zealand, and South America. Only recently
arrangements were being made for the despatch of cargoes
from the Teeside to both New Zealand and South America.

One of the features of the shipments of rock salt for the
month in question was the item of 2,352 tons for Holland,
but this is only of temporary interest, as there is usually an
improvement in the shipments to Holland as the winter
approaches. An improvement in the shipments which is likely
to be of a lasting character, is what would be most welcome.

Not unnaturally with the inception of the new tariff in
the United States, one of the most interesting features of the
returns for October was expected to be found in the figures
showing the shipments to the States.

As regards the Northern States there does not seem to
have been much change, the total shipments of white salt for
the month having been 3,152 tons. This is not altogether
surprising, as it is in the markets of the North that the
Americans can best compete with us. In the South, how-
ever, there has been a marked improvement, the shipments
having been 9,907 tons. It is perhaps a more favourable sign
that the demand should increase steadily rather than by leaps
and bounds.

It must, nevertheless, not be forgotten that the prospect of the demand continuing to improve depends in a large measure upon prices being kept reasonably moderate. For the accomplishment of this end it is also necessary that freights should not advance. Under these conditions there is no reason why the Southern States should not continue to constitute a useful market for English manufacturers.

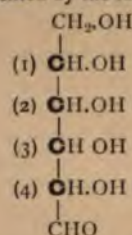
Though there is an improvement in the shipments of white salt for October as compared with the same month in 1893, a study of the grand totals does not show quite such a great improvement, as there has been a considerable falling off in rock salt. Thus, while white salt shows an increase of 3,140 tons, a comparison of the total shipments, including white and rock, reveals the fact that the shipments for October are only 3,038 tons more than in 1893, this latter figure representing the true net increase.

OPTICAL ACTIVITY AS A GUIDE TO CHEMICAL CONSTITUTION.

By WM. HUNTINGTON, B.Sc.

(Concluded from page 305.)

IT is, however, with the sugars that the most remarkable advances have been made by means of ferments. In the course of his work on the synthesis of the sugars, Emil Fischer obtained a product very closely resembling the well known fruit sugar, levulose, in all its properties, except that while levulose is strongly laevo-rotary, his product (named fructose) was inactive. Fermentation with brewers' yeast, however, resulted in the conversion of one half of it into alcohol and CO₂, and the remaining half rotated the plane of polarisation to the right through an angle equal to the opposite rotation due to ordinary levulose. Here, again, the blending of two oppositely rotating substances resulted in an inactive form. Coming to the still better known glucose (grape sugar or dextrose) we find it represented by the following formula:—



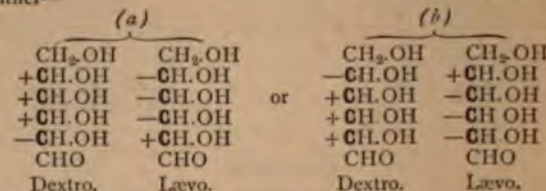
It thus appears as containing 4 asymmetric C atoms, viz., those marked C. For example, C (1) is combined with the 4 groups H; OH; CH₂OH; and (CHOH.CHOH.CHOH.CHO). C (2) is combined with groups H; OH; (CH₂OH.CHOH) above it; and (CHOH.CHOH.CHO) below it. Similarly C (3) and C (4) will be found to be individually in combination with 4 different groups. Now each asymmetric C atom is capable of yielding what I may term a dextro arrangement of its groups, or a laevo arrangement, and taking the 4 asymmetric atoms into careful consideration, 16 different arrangements are possible.

+	+	-	-	+	-	-	-	+	+	+	+	+	+	-	C (1)
+	-	+	-	+	-	+	-	+	+	+	-	+	+	+	C (2)
+	-	+	+	+	+	-	+	+	-	+	-	+	-	-	C (3)
+	-	-	+	+	+	+	+	-	+	-	-	-	-	-	C (4)
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Of these 16 arrangements the following suggest equal and opposite rotations of the plane of polarisation:—1 and 4; 2 and 3; 5 and 15; 6 and 16; 7 and 13; 8 and 14; 10 and 12; 9 and 11. Thus 8 dextro varieties of glucose are possible, and also 8 laevo varieties; but, in addition, by combination of equal parts of these optically opposed isomers, 8 inactive types are possible, giving a total of 24 isomeric glucoses, 8 dextro-rotary, 8 laevo-rotary, and 8 inactive.

Practical research has resulted in the identification of 13 of these 24 isomers as indicated by theory, viz.:—Mannose (3 modifications), Glucose proper (3), Gulose (3), Galactose (3), and Yalose.

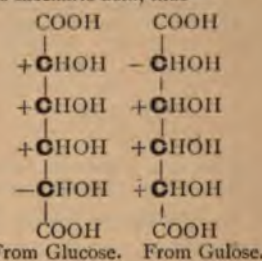
Moreover, Fischer has shown that dextro-mannose and laevo-mannose have respectively the arrangements indicated in types 1 and 4, and also that the formulae representing dextro and laevo-glucose (proper) must be either—



If the arrangements in *a* are correct, then *b* suggests another glucose, only differing from glucose proper, in the positions of the CH₂OH and CHO groups. Reverse these, and the formulae are quite identical. It is a remarkable fact that Fischer has actually prepared a sugar (called gulose) which appears to answer to this prescription; for if glucose and gulose be subjected to gentle oxidation, each has its CHO group converted into a carboxyl group (COOH) and two distinct acids are obtained, viz., gluconic and gulonic—thus



Further oxidation converts the CH₂OH group into a second carboxyl group (COOH), and the formulae are then exactly identical and the product in each case is saccharic acid, thus—



Such a confirmation as this, of course, causes much confidence to be placed in the theory of the asymmetric C atom.

Professor Frankland closes his admirable paper with a reference to the most recent knowledge on this subject. Attention is drawn to the fact that, while a substance rotates the plane of polarisation in one direction, its simple derivative may rotate in the opposite direction, and various derivatives give varying amounts of rotation. This is shown in the following series:—

Diacetyl tartaric acid	.....	specific rotation	 - 23° 14'
Methyl salt of	.....	"	.... - 14° 29'
Ethyl salt of	.....	"	.... + 1° 02'
Propyl salt of	.....	"	.... + 6° 52'
Isobutyl salt	.....	"	.... + 10° 29'

To explain these increases in rotation, with the increases in molecular weight, Messrs. Crum Brown and Guye suggested that alterations in the weights of the groups attached to the asymmetric atom might be expected to produce alterations in the rotation, and that if the attached groups became equal in weight, optical inactivity might be looked for, while with great disparity in the weights great activity was probable—in other words displacement of the centre of gravity of the system from the C.G. of the tetrahedron is possibly accountable for the rotation produced. This is apparently supported by the observations of Messrs. Frankland and McGregor on some derivatives of active glyceric acid prepared by them. Thus, in the following series, while three of the groups attached to the asymmetric atom in each case remain unaltered, the increase in the weight of the remaining group is accompanied by an increase in the rotation.

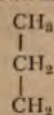
Methyl glycerate—groups H = 1; HO = 17; CH₂OH = 31
(4) CO.OCH₃ = 59.
Rotation—4° 8'.

Ethyl glycerate—groups 3 (as above) (4) CO.OC₂H₅ = 73
Rotation—9° 18'.

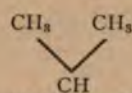
Propyl glycerate (normal)—groups 3 (as above) (4) CO.OC₃H₇ = 87
Rotation—12° 94'.

Butyl glycerate (normal)—groups 3 (as above) (4) CO.OC₄H₉ = 101
Rotation—13° 19'.

As a further test, isopropyl glycerate was prepared and examined. This contains the same group as the normal glycerate, so that the fourth group remains unaltered in weight. But while the normal glycerate gave a rotation of -12.94° , the iso-compound gave only -11.82° . Evidently something more than the weight of the attached molecules has to be considered. This something appears to be the arrangement of the atoms in the groups themselves. Thus the propyl group (C_3H_7) in the normal salt has the arrangement shown at (a); in the iso-salt, that shown at (b).



(a) Normal propyl.



(b) Iso propyl.

The C.G. of the normal system (a) is evidently further from the point of attachment to the asymmetric C atom than that of (b), and this is suggested as accounting for the increased rotation of the normal glycerate. This interesting and ingenious speculation, however, leaves

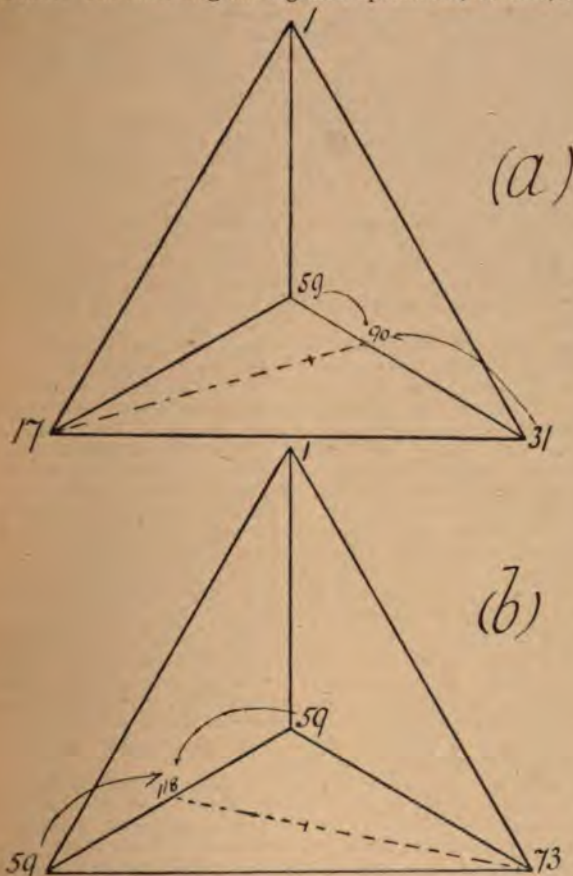


FIG. VII.

several other cases without any satisfactory explanation. Dr. Frankland points out that in methyl diacetyl glycerate prepared by him and Mr. McGregor, the weights of the attached groups are respectively 1, 59, 73, 59, and the rotation is -12.04° ; while in ethyl diacetyl glycerate the weights are 1, 59, 73, 73, and the rotation is -16.31° . He directs attention to the fact that, although in these substances two of the groups are equal in weight, there is no approach to inactivity, as Crum Brown and Guye suggest. Their rotations are greater than that given by methyl glycerate, in which the weights of the attached groups are all different. An example will make this perhaps more conspicuous. In (a) representing methyl glycerate, the C.G. of the three lower groups is on the line joining 17 and 90 at a point 16 of the line from the 90, and the rotation is -4.8° . In (b) the C.G. is on line 118-73 at a point .382 of its length from the 118, and, therefore, the C.G. of the whole system is nearer the geometrical C.G. of a regular tetrahedron than is the case with (a). Its rotation, therefore, to accord with Crum Brown's idea, should be less, but is actually greater, being -12.04° . This very interesting problem is, therefore, still awaiting solution, and it possibly lies in the direction indicated by Messrs. Crum Brown and Guye, although some modifica-

tion or fresh development is required. In conclusion, I wish to express my indebtedness to Dr. Frankland for readily granting me permission to draw so largely upon his paper—a paper remarkable for its lucid and methodical treatment of a somewhat difficult subject.

THE STATE OF CHEMICAL TRADES.

CHEMICAL works in the Wear and Tyne districts are working full time, but are employing less men. The white lead and cement industries are fairly busy. Round Burnley and Accrington employment is moderately good in the dyeing and calico-printing trades. There is a slight improvement noticeable among bleachers and dyers about Manchester and district, and silk dyers at Macclesfield are busy. The glass and chemical trades at St. Helens are depressed, particularly the former industry. It is anticipated that the chemical trade will improve with the new year. The salt trade at Winsford is bad, and stocks are accumulating. At Middlewich also the chemical trade is much depressed. At Barrow there are still satisfactory signs of activity among paper pulp workers. There is an improvement in the seed-crushing industry at Hull. Some mills have had to stop for want of cottonseed. In paints and colours things are fairly satisfactory. In the Wolverhampton district, however, oil, colour, and varnish makers are well employed. There is a slight improvement in the glass trade about Dudley. Fire-brick makers are rather slack, however. Paper makers, bleachers, and dyers in Derbyshire are fairly busy. Short time is still worked at chemical works in the Swansea district, business being slack. The fuel works are also not so busy.

THE MANCHESTER LITERARY AND PHILOSOPHICAL SOCIETY.

BY invitation of the President and Council of the Manchester Literary and Philosophical Society, a conversazione was held on Tuesday evening at 36, George-street, where the rooms of the Society are situated, when Mr. Henry Wilde (president) received a numerous company of guests. It is rather a notable circumstance in the history of the institution that this was only the second of these functions which the Council has organised within a period of 114 years. The first conversazione of the Society took place five years ago. That of Tuesday night was so successful that a more frequent repetition of these social occasions may perhaps be looked for in the future. The exhibition of interesting things brought together for the evening had to do almost exclusively with the scientific side of the Society's work. Literature as well as science, however, was represented in the "Daltoniana" shown by the Society and arranged by Sir Henry Roscoe, M.P. The collection included two volumes of letters from John Dalton to his brother Jonathan, written between the years 1794 and 1823, and also to other correspondents; the diploma of Dalton's membership of the Literary and Philosophical Society, dated April 25, 1794; the King's warrant granting a pension of £150 to Dalton, dated the 22nd November, 1833; the syllabuses of lectures delivered by the scientist between 1787 and 1835, and the cards of the lectures which he gave at the Royal Institution in 1810. Mr. J. Cosmo Melvill contributed some selected examples of New Zealand flora to the exhibition. The collection from which these were taken was stated to be almost complete, possessing all but 75 of the described species. It was mostly brought together by Dr. T. Kirk, the Government botanist at Wellington, then augmented by Dr. Berggren's gatherings, and last, but not least, by the whole of the herbarium of the late Mr. R. Helms, of Greymouth, South Island. In the meeting-room the President showed a magnetarium for reproducing the phenomena of terrestrial magnetism and the secular changes in its horizontal and vertical components, a magnetometer for showing the influence of temperature on the magnetisation of iron and other substances, and a variety of other exhibits. Dr. Schunck's contribution to the exhibition took the form of a great number of specimens of colouring matters, natural and artificial, and allied substances, mainly representing the results of his own researches and experiments. Some root pressure and transpiration experiments, especially interesting to botanists, were given by Professor F. E. Weiss in the natural history-room, where Professor S. J. Hickson also displayed some samples of oil foams, showing molecular movements resembling those of protoplasm, together with specimens showing the actual movements of living protoplasm. In the tea-room Mr. Francis Jones showed a case of specimens illustrating the action of certain gases on sulphur in presence of light, and Mr. Stanley Dunkerley exhibited an apparatus used in experiments to verify the theory of the whirling and vibration of shafts.

GOLD RECOVERY IN THE RAND.—Fifty-six thousand ounces of gold have been recovered in the Rand and 8,700 oz. in other districts (total, 64,700 oz.) during October, by means of the MacArthur-Forrest cyanide process. The September total was 62,200 oz.

Official Memoranda.

(From the Board of Trade Journal.)

INDIAN CINCHONA PLANTATIONS.

The annual administration report on the Government cinchona department, Nilgiris, for the year 1893-94, recently issued by the Revenue Department of the Government of Madras shows that at the close of the year 1892-93 there remained in stock 362,349 lbs. of bark and this, with that harvested during the year, makes a total of 445,816 lbs., but of this quantity 177,672 lbs. were disposed of as follows:—

Used in the factory for the manufacture of quinine and febrifuge (brown bark) 52,600 lbs.; used in the factory for the manufacture of quinine and febrifuge (red bark) 122,400 lbs.; sold to medical stores, Madras, 1,200 lbs.; sold to medical stores, Bombay, 800 lbs.; purchased by Messrs. Kemp and Co., Bombay, 672 lbs. Total, 177,672 lbs.

SUGAR PRODUCTION IN RUSSIA.

The French Consul-General at Warsaw says that the results of the sugar yield in Russia in 1893 are sufficiently advanced to show, as compared with the preceding year, a decided increase. The quantity worked up amounted to 34,881,000 berkovetz (berkovetz = 360 lbs. avoirdupois), against 22,492,000 berkovetz in 1892, and in so far as regards the quality of the beetroot harvested in Poland and in the south-west provinces, the beets have been particularly rich in saccharine matter.

THE CEMENT INDUSTRY IN AUSTRIA-HUNGARY.

The Portland cement industry in this country is growing so steadily that it is thought that it will before long compete with the Russian and French trade.

A few years ago the import of Portland cement through the port of Trieste was considerable, the larger part of the cement imported came from Newcastle, but Dunkirk also sent a small quantity.

At present the import has not only completely ceased, but it would not even be astonishing to find that Austrian cement is imported into England and France.

There are many cement factories at the present time in Austria, established mainly on account of the high price of the English article. These factories produce cement of different qualities, but, quality for quality, the Austrian article is stated to be equal to the English cement.

At the present time the price of Austrian cement at Trieste is very nearly the same as that of English cement in England; there is therefore no inducement to import the latter, because of the import duties and freight.

It appears that all or nearly all of the Austrian cement factories have adopted the principle of delivering their speciality at the same price in any place in the Empire, themselves paying the difference in the carriage rates. With this system, which is remunerative, owing to the very low rates of the railway tariffs, and being given also the increased cost of maritime freight, and the securing of a return freight by English vessels, it would be sufficient for a demand to arise in England for Austrian cement to be exported with profit to that country.

On the other hand, it is asserted that the abolition of the free port of Trieste has been the last blow to the importation of foreign cement through that port.

THE CAUCASIAN PETROLEUM TRADE.

Mr. P. W. J. Stevens, Her Majesty's Consul at Batoum, in a report to the Foreign Office, writes:—

In view of the requirements of the Russian kerosene and distillate export trade the members belonging to the first group of oil refiners who have not yet fulfilled their engagements for the delivery of oil to the Syndicate, have been called upon by a circular, which was issued by the head offices of the union, to forthwith comply with the terms of their agreement; otherwise, in virtue of paragraph 3 of the contract with the union dated the 26th of October, 1893, the losses sustained by the latter in consequence of the curtailment of the supplies will be carried to the accounts of those persons who have not up to date furnished the quantities of oil which they undertook to deliver.

The text of this circular clearly demonstrates that the stagnation which has prevailed during the present year in the export trade of Russian kerosene and distillate has at last come to an end, and that the demand in foreign countries for these two products has largely increased.

It is reported, however, that many oil refineries near Baku have not yet resumed work.

THE MINING AND METALLURGICAL INDUSTRIES OF RUSSIA.

The Russian Ministry of Finance has recently issued an interesting publication relating to the goods traffic on Russian railways, one part of this work dealing exclusively with the question of the transport of minerals. According to the *Moniteur Officiel du Commerce*, which has devoted some attention to a review of this publication, the production of ores has shown, during the last three years, a decided increase, and the total quantity carried over the whole of the Russian railways amounted to 44,858,000 pouds (poud = 36 lbs. avoirdupois) in 1890, 46,812,000 pouds in 1891, and 61,579,000 pouds in 1892, an increase in the latter year of 32 per cent. as compared with 1891, and 37 per cent. as compared with 1890.

The greater part of this increase is principally made up of iron ore, the production of which in 1893 showed an increase of 6,653,725 pouds, and of which the working is concentrated, with the exception of certain mines situated in the Ural Mountains, in the south and south-west of Russia. The richest beds are found in the environs of Krivoi-Rog, on the border of the governments of Kherson and Ekaterinoslav, and these are worked by a French company. The output on these railways has been as follows:—In 1877, 10,008,000 pouds; 1888, 13,995,000; 1889, 21,008,000; 1890, 22,998,000; and in 1891, 28,816,000. Thus the production has almost trebled in five years in the southern districts of Russia. The number of mines working, which was 15 in 1887, amounted to 25 in 1891.

The principal points of despatch and of the destination of these ores during the triennial period 1890 to 1893 were the stations of the Ekaterinskaia and the Donetsk railway, which form the centre of the mining industry in Southern Russia. The largest quantities are sent from the stations situated near Krivoi-Rog. For example, from the Karnavajka 16,760,000 pouds were despatched in 1890, 19,448,000 in 1891, and 20,105,000 in 1892. From Dolzhinza station 34 millions were despatched in 1890, 35 millions in 1891, and 45 millions in 1892. From Krivoi-Rog the figures were 98,000, 443,000, and 3,400,000 pouds, and similar increases have been observable at most of the other stations.

After iron ore, manganese ore comes next in importance as furnishing a large proportion of the goods traffic on Russian railways. These ores are worked in the Caucasus, in the Ural districts, and in the Government of Ekaterinoslav. Among all manganese-producing countries Russia stands at the head, and it was only during the second half of the decennial period 1880-1890 that the working of the ore was first undertaken in Ekaterinoslav. Notwithstanding this, the production in that Government amounted to 90,000 pouds in 1888, 342,000 in 1889, 521,000 in 1890, 660,000 in 1891, 1,795,000 in 1892, and 4,739,933 in 1893. The increased production of ores has naturally had its effect upon the production of iron and steel, which at one time, and only very recently, came from Poland and the Ural Mountains alone, but which is even supplied in considerable quantities throughout the southern districts of the Empire. It is the confident opinion of authorities in Russia that the iron and steel industry will become the most important in the country. The consumption of iron and steel in Russia amounts to from 55 to 58 millions of pouds annually. Experience has shown of late years that the mineral wealth of Southern Russia yields in nothing to that of the Ural Mountains, and it enjoys greater advantages through its proximity to the Donetsk coal basin.

In 1890 the production of iron and steel amounted to 8,623,000 pouds, while in 1891 and 1892 it had increased by about 30 per cent., and represented a total of 11,000,000 pouds. During the same period the works of the district in the neighbourhood of Moscow were able to reduce their production from 8 million to 6 million pouds, those of the northern governments from 6 millions to 5 millions, and the Siberian works from 265,000 to 167,000 pouds. In the neighbourhood of the Vistula there was no change to notify in the production of iron and steel, which remains at 7,600,000 pouds; but while the increase attains the rate of about 30 per cent. in the South, it does not exceed 20 per cent. in the Ural Mountains, the actual figures for the latter being from 17 million to 21 million pouds.

It appears, therefore, that in three of the six districts in which the metallurgical industry is established in Russia a falling off is observable in the production; in one alone it remains stationary; and it is only in the Ural, and particularly in Southern Russia, that the industry may be said to be advancing. In 1890 the proportion to the total production in the South was in the ratio of 17 per cent.; in 1892 it was 21 per cent. It is the Government of Ekaterinoslav that now occupies the first place for the quantity of steel it delivers for consumption. This quantity amounted in 1892 to 9 million pouds, while the works of the Governments of Pietrkow, Orel, and St. Petersburg only supplied about 3 or 4 millions each. As regards the coal mines, the *Messageur Officiel* recently stated that the production of the 89 collieries of the southern provinces of European Russia amounted in 1893 to 134 million pouds, against 125 million in 1892.

The immediate consequences of this rapid development of the mining and metallurgical industries in Russia has been the continued diminution, a diminution which has become more and more accentuated, of the importation of foreign iron and steel. Thus, for example, the Odessa Custom House showed by their returns an entry of 806,000 pounds in 1890, 565,000 pounds in 1891, and 247,000 pounds in 1892; while similar results are observable in the returns of the Batoum and Woloziska.

THE CHEMICAL EXTRACTION OF GOLD.

IN the gold mining industry, as in many others, the utilisation of waste products has turned out so remunerative that the working up of the same has become one of the most important parts of the industry. After crushing, there always has been a certain amount of gold which could not be separated by any levigation process, and which also when in such a fine state of division as to be capable of mechanical suspension in water, was not extracted during the amalgamation process.

Of late years attention has been specially paid to the development of chemical means which would enable the gold in the tailings to be recovered. And even now, with the improvements which have been made in the shape of chlorination and cyanide processes, there yet remains 5 per cent. of unavailable gold in the waste ore.

The economical merits of each extraction method, based on chemical laws, is largely dependent upon the characteristics and position of the gold-bearing region in which the process is to operate. It is apparent that a process entailing the preliminary roasting of the ore or tailings cannot be economically employed in a region destitute of fuel, nor can a process requiring an unwieldy mass of chemical re-agents be used in a district where transport is inefficient or expensive. The process has yet to be invented which will effectively deal with gold-ores without the use of water. We do not overlook the fact that machines of this nature have been devised and patented, but their value has generally been more apparent to their inventors than to their employers. It will be seen, therefore, that the requisites of a successful extraction plant are largely altered by locality. After fulfilling all the requirements in that direction, a process may yet fail owing to the geological characteristics of the district. One process deals effectively with free gold in weathered quartz formations; another economically extracts the gold from unaltered veinstone. One advantageously treats ores having an acidic nature; another would be preferred for veinstone of a basic character. These, broadly, are some of the details which must not be overlooked when selecting an economical process. Perhaps the earliest of all methods of chemical extraction was that effected by means of chlorine. Various chemical combinations of chlorine and different methods of its application to the roasted or unroasted ore form the basis of the numerous patent "chlorination" processes at present in use. The solution of gold in aqua regia, a mixture of nitric and hydrochloric acids, doubtless directed attention to the solvent action of nascent chlorine upon gold, and caused a well-known laboratory action to become of commercial importance. One patent demands the generation of the chlorine in contact with the ore, while in another arrangements are made whereby the prepared gas is passed into the ore-receivers. Then certain specifications entail the application of pressure to the mixed chemicals and ore, or again a partial exhaustion has first to be effected, and the chemicals or chlorine then introduced to the ore under the thus diminished pressure. Each new inventor adds but another permutation and combination, suitable doubtless for special classes of ore, but all dependent upon the solvent action of the chlorine upon the weakly basic gold. If the ore so treated be of an essentially basic nature, then much chlorine is irretrievably lost, because the chlorine has to decompose and neutralise the worthless basic material before the gold can be attacked.

In another valuable chemical process, largely employed for the extraction of gold from seemingly worthless tailings and highly refractory ores, an old and well known laboratory reaction is made the basis of commercial operations. It has long been a well-recognised fact that alkaline cyanides readily dissolved and combined with metallic gold, the reaction being indeed an essential part of the well-known process of electro plating. Here, again, we see what may perhaps be termed a development rather than an invention. The cyanide process is the result, then, of accumulated investigation, and the solvent action of cyanide of potassium has been the basis for a number of more or less important patents. In 1844 Napier, and in 1857 Faraday, showed that gold leaf was readily dissolved by dilute solutions of cyanide of potassium. Faraday demonstrated that if the gold were floated on the solvent liquid, so as to expose one surface to the free play of the air, the corrosive action took place with greater rapidity than if the gold was completely immersed. He thus corroborated the previous discovery by Elsner, in 1844, that oxygen was essential for the solution of the gold. In 1867 J. H. Rae obtained letters patent, No. 61,866 in the United

States for a process of gold and silver extraction based upon the combined action of a "current of electricity and of suitable solvents or chemicals." The solvent was cyanide of potassium, and the gold was precipitated on copper plates by the electric current, which was then understood to be essential for the speedy solution of the gold. Although this original patent has lapsed, other American patents have been advanced from time to time, more particularly between 1880 and 1885, but without any great measure of success. In 1885 J. W. Simpson obtained United States letters patent, No. 323,222, in order to treat ores containing gold, silver, and copper by means of 3 per cent. solutions of cyanide of potassium in conjunction with solutions of alkaline carbonates. He used 0.19 per cent. solutions of carbonate of ammonia. This addition of carbonate of ammonia was apparently intended to improve on Rae's previous use of electricity. The addition, although it did not have the results anticipated by the inventor, was certain to have a marked effect in preventing the decomposition and loss of cyanide, due to the acid nature of certain ores. The ultimate precipitation of the dissolved gold was in this patent produced by means of zinc.

In 1887 Messrs. MacArthur and Forrest obtained a patent for the use of cyanide of potassium solutions, and in 1888 took out another patent for the precipitation of the gold by means of zinc, the former of these patents being the subject of the present cyanide litigation. By employing a weak aqueous solution of an alkaline cyanide, one part salt in 1,000 water, this extraction process succeeds in recovering about 90 per cent. of the gold present in one ton of low-grade ore or tailings by the consumption of a maximum of about 2lb. weight of cyanide of potassium. If the ore be acidic, owing to the weathering or oxidation of the pyrites commonly associated with auriferous veinstone, then lime or caustic alkali is applied with a view to conserve the cyanide of potassium and to obviate the necessity of roasting the ore. The dilute cyanide solution after percolating the mass of powdered ore is run through boxes containing zinc, in the form of shavings, whereby the gold-bearing cyanide solution is exposed to the action of a large surface of zinc. A hydrolytic interchange takes place in the zinc troughs, causing the gold to be deposited from the cyanide solution in the form of a powder and the zinc to replace the gold in its combination with the cyanide. The advantages claimed for this process are that roasting is unnecessary, that the quantity of extracting chemicals is small and can be transported with ease, and that the plant employed is comparatively simple. It has been already explained how the necessity for roasting is obviated, and when it is considered that two pounds of cyanide of potassium will treat one ton of ore, and that the extracting chemicals can be packed in cases made of zinc, which, when converted into shavings, form a portion of the precipitating material, the advantages in connection with the question of transport become obvious. The requisite extraction plant consists simply of a suitable vat and a trough for the zinc shavings. The capacity of the plant is dependent only on the amount of ore available for extraction. It must not, however, be overlooked that a great deal depends upon the texture of the ore and the manner in which it has been crushed before leaching. A highly friable ore may, if injudiciously crushed, become so finely powdered as to create slimes in the leaching vat, and so prevent percolation, while the very machinery which produced this result with easily friable ore may be exactly suited to the requirements of a harder gangue.

From this it will be seen that an effective application of the cyanide process implies a mechanical as well as a chemical knowledge on the part of the operating staff. Competent authorities assert that a dry-crushing process is preferable to a wet method. In 1892 nearly 15 per cent. of the total output of gold during that period in South Africa was due to cyanide extraction. Since the inception of this process one-fifth, roughly, of the total world's gold production has been obtained by re-treating a quantity of waste material which had hitherto been considered as valueless.

RIVER POLLUTION AT BOLTON.—At Bolton Police-court, last week, the Bolton Corporation were prosecuted by the Mersey and Irwell Joint Committee for river pollution. It was stated that the Bolton sewage effluent was very bad, being worse than that of Salford. For the Corporation it was contended that as they were embarking upon a sewage scheme costing £75,000, the prosecution was unnecessary and unreasonable. The magistrates made an order for abatement within twelve months, and imposed a nominal penalty.

COCOA OR STARCH.—At the Marylebone Police-court, on Monday, W. Harding, grocer, trading as Wale and Co., of High-street, Camden Town, was summoned by the St. Pancras Vestry for selling 4lb. of cocoa which was adulterated by the admixture of starchy farina and sugar to the extent of 50 per cent. Mr. Ricketts, solicitor, prosecuted. Evidence having been given of the purchase of the "cocoa," for which 9d. was charged, Mr. Plowden said that it was clear that what had been sold was some wretched mixture, and the defendant would have to pay a fine of £5. and the costs.

INQUIRY ON THE CONVERTER EXPLOSION AT GARSTON.

ON Monday and Tuesday last an inquiry was held at Garston, near Liverpool, touching the fatal explosion of a converter, which occurred at the sugar works of Messrs. Bostock and Co., under peculiar circumstances (*C.T.J.* 389, p. 275). Three men were killed. Mr. Husband watched the case on behalf of their relatives, and Mr. Dun on behalf of Mr. Bostock. Mr. Richmond, Government Inspector of Factories was also in attendance. After the evidence of the relatives of the deceased had been taken, witnesses for the defence were heard.

Mr. John W. Anderson, a member of the Institution of Mechanical Engineers and assistant lecturer in engineering in University College, called by Mr. Bostock, said he had examined two pieces of copper sent to him which had been taken from the converter. In one case the copper stood a test of 15.56 tons to the square inch and in the other case 15.6 tons. The difference in strength was .04 per ton.

By Mr. Richmond: He had not tested for the quality.

By Mr. Husband: He did not examine for corrosion. He simply tested for the strength.

Mr. William Bostock, proprietor of the sugar works, said the converter came to Garston in 1886, but previous to that it was erected for five years in Newcastle-under-Lyme. It had not been used for two years. Furthermore, during the time it was used there it only worked two days a week. The converter was not insured. It never entered into their minds to insure it any more than the steam heaters.

By Mr. Husband: He visited the works sometimes once a week, sometimes once in ten days. He had no recollection of the cause of the repairs fifteen months ago. Sulphuric acid was used in the converter, the quantity employed varying from 1 to 2 per cent. in the material. They had not found from their experience that the acid affected the copper. The converter had been periodically examined. The same pressure was practically on the converter as on the boiler—100 lbs. to the square inch. He had found after the explosion the metal in its finest part $\frac{1}{16}$ of an inch thick. This was only in one spot, some four inches square. It was not until after the explosion that he knew it was so thin. He left the management of the business to a competent man, and could not say whether he would have worked the converter had he known it was so thin. Mr. Healey, an engineer, was brought in from time to time to do repairs. They had no safety valve upon the converter, because the thick liquor would splash upon it, and not allow it to work more than five minutes. There were, however, three safety valves upon the boiler. He always had a chat with the principal men when he visited the works, and after the accident he went to the works and spoke to the man in charge of the boilers and converter, and he denied having said to one of them that he would better mind how he was working the converter. Goulden told him the process of conversion had been completed, and that the stuff was going up. He had a strong opinion as to the cause of the explosion. He had not prior to the occurrence visited the works for more than ten days. On the evening of the explosion he arrived there about a quarter to five. He went through the works alone, and spoke to the man who was drawing off a tank underneath the converter. He made a suggestion to the man as to the filling. Then he went into the office, and was about to write a letter when he observed between the saccharine house and the charcoal kilns a fearful flash of lightning. A minute later there was an awful explosion, and his first impression was that the boiler had exploded, and he rushed out of the office and ordered the men to turn off the gas at the meter. He met other men coming from the works, and they told him that the steam pipe from the boiler to the engines had exploded. Later he found that it was the converter that had burst, and he attributed the cause of the explosion to a lightning shock. He could not believe that a converter only the size of a sitting-room door, containing one-third of material, with only its own steam, could cause an explosion which would shatter a massive brick wall nearly three feet thick.

Joseph Healey, an engineer carrying on business at Garston Dock, said he had done repairs for several years at Messrs. Bostock's works. Fifteen months ago he was requested to repair the converter. On examining the vessel, he found it was split through for a distance of about three inches on the top hemisphere. He removed the top entirely, but did not examine the body of the converter. The inside was covered with from one inch to one and a half inch of black incrustation caused by the working. This incrustation prevented him from seeing the thickness of the shell of the converter. The top was too thin for repair, so he put a new top on. The fact of the top being thin did not give him the impression that the body was thin. Since the explosion he had seen the converter, and found that it was thin at the top where it had not been covered with black incrustation. He did not test the converter when he put the top on, because it was not put into his hands for examination.

By Mr. Husband: They generally did this class of work under the superintendence of the consulting engineer of the works. When he

carried out the work it was under the orders of Mr. Lloyd and Mr. Gerkin. No hydraulic test was applied by him, nor was it suggested that he should apply one. The work was done on Messrs. Bostock's premises. Had it been done in his own yard he would have tested it. The converter would have been safe if it had had a safety valve, but he could not say whether an accident would have been prevented thereby. He would not have worked the converter without an attendant.

By Mr. Dun: He had visited the works since the accident, and found that all the valves were shut off with one exception, a steam-valve on the main steam-pipe from the No. 6 boiler to the converter. He turned the valve-wheel three-quarters of a revolution to get the valve on to its seat. When he repaired the converter he had the top off and seven holes at the bottom. From what he saw of the thickness of the copper about the holes, he formed the conclusion that the metal was as thick as it originally was. In his opinion no other examination was necessary, and he did not suggest one.

In answer to a jurymen, witness said he did not see a patch on the converter put on from the inside and riveted from the outside.

Asked by the coroner as to his opinion of the cause of the explosion, the witness said the shell was too weak. This was the only cause he could assign for the explosion.

William Newlands, manager of the works, testified that he had been manager for ten months. He was not there when the repairs were executed by the witness Healey. No complaint had been made to him of anything being wrong with the converter, and he had no reason to believe that anything was wrong in any respect. He was not an engineer. He had had six years' experience in the largest sugar refinery in India. He had never examined the converter because he did not consider it necessary. He was not aware that Mr. Bostock held him responsible as an engineer.

Examined by Mr. Husband, witness said he knew from experience that a converter became exhausted in the course of time by wear and sand and acid. The gauge of the converter had been stopped on one or two previous occasions. Five minutes before the explosion took place he heard that steam was coming out of a rivet hole. He thought the converter must have received a shock in some way.

Mr. Husband: It has been suggested that it might have been a shock of lightning; do you believe in that theory?

Witness: I believe it is a possible one.

Mr. Husband: Do you think it is probable in this case?

Witness: In the absence of any other evidence I should feel inclined to believe it.

By Mr. Dun: The converter had only been worked about three and a half weeks, reckoning the total number of hours it had been used during the ten months he had been at the works. None of the valves had ever stopped, and everything had worked smoothly during that period.

John Dun deposed that he was in charge of the works when the repairs to the converter were done by Healey. The coppersmith employed by Healey was instructed to test the lower part of the converter as well as to put a new top on. The report he received was that the shell was practically as good as new.

By Mr. Dun: The incrustation was removed at the time that Healey's men repaired the converter. Healey's men did everything necessary to put the converter into working order.

Lutge Gerkin, who said he had up to six months ago been in the employ of Mr. Bostock for twenty-eight years, for some time as under manager, remembered Healey repairing the converter fifteen months ago. Witness then examined the inside of the converter when the top was off. The incrustation was removed from the inside, and the shell examined, and it appeared to be as thick as when new.

Questioned by Mr. Husband, Mr. Gerkin said Lloyd and himself examined the converter, but neither of them were engineers. Healey also examined it, he thought, after the incrustation was removed. The shell was about $\frac{1}{16}$ th of an inch when it was made, and it did not seem fifteen months ago to have become any thinner in the body.

The witness Healey, recalled, and replying to the Coroner, said he was not aware that his coppersmith was instructed by Lloyd to test the converter. All he was called in to do was to repair the top hemisphere.

Joseph Goulden, who said he lived at 14, Dingle-vale, Garston, gave evidence to the effect that he had been eleven and a half years in Mr. Bostock's employ as foreman ganger. He went to his work at nine o'clock on the morning of the 29th ult. The last charge was put into the converter which exploded at five o'clock, and consisted of sago, into which steam was gradually introduced. The exhaust valve was then open. In about a quarter of an hour he closed the exhaust valve, and steam was forced into the converter about ten minutes longer. He was certain he shut off steam, and opened the discharge valve shortly after. The gauge showed 95 lbs. pressure; it then fell to 85, and afterwards suddenly dropped to zero. He knew there was something wrong then, and went to the fitters' shop to get a fitter to rectify the matter. There was no steam escaping from the converter at this time. The converter

had discharged about half its contents when he left for tea. Had nothing happened he would have been away half an hour for his tea.

By Mr. Dun: The explosion occurred about 5.40. When he left the boiler registered 60 by the gauge attached to the main steam pipe.

Further evidence was tendered by Joseph Harris, John Hall, and Patrick Devine, other employees at the works.

Samuel Marshall, one of the night gang at the time of the explosion, said as he was going past the converting-room he noticed a quantity of steam issuing from the top of the converter. There did not seem to be anybody in charge. He was alarmed, and ran down and told the deceased man, Mark Ford, that there was something wrong. Ford examined the converter, and said there was something to do with the valve. Witness went to the fitting shop and brought a man named Hill to look at the thing. He was just about to enter the door when the explosion took place. Witness was knocked against the door, and received injuries to his right arm and side.

A Juryman: Was the converter vibrating very much?

Witness: Oh, no.

John Finlay, another employee, gave evidence.

Mr. Husband called Mr. Woodhouse, an engineer, of Garston, who, as the result of an examination of the converter, said its thickness varied in parts from $\frac{1}{4}$ inch to $\frac{1}{8}$ inch, $\frac{1}{8}$ inch, and $\frac{1}{16}$ inch, in different parts. If the converter was originally $\frac{1}{4}$ inch thick—it might have been $\frac{1}{8}$ inch—the bursting capacity would be about 243 lbs. They must, of course, however, take the thinnest part as the strength of the whole, and at $\frac{1}{8}$ inch it would be about 120 lbs., and at $\frac{1}{16}$ inch 60 lbs. The converter might be worked at 40 lbs., and not show any signs of being unsafe.

The Coroner: What thickness ought it to be to stand a working pressure of 95 pounds?

Witness: It should be over $\frac{1}{2}$ -inch thick, nearly 9-16, to be safe at 95 pounds.

The Coroner inquired if the defect could have been found out by external examination.

The witness replied that it could only have been done by drilling. It might have been sounded by a hammer, but that was not a sure method.

The Coroner: The converter was working at 25 pounds more than it should have been?

Witness: Yes.

The jury retired to consider their verdict at twenty minutes past seven. At twelve minutes past eight they returned into the court. In answer to the Coroner's question as to whether they had agreed upon their verdict,

The Foreman said: "We find that the cause of death was accidental, and we make the presentment that Messrs. Lloyd, Gerkin, and Newland were incompetent to take charge and make the necessary inspection of this converter, and that this converter ought to have been periodically inspected by competent persons."

The Coroner: Do you find, then, that the converter was defective, and that it was unable to bear the strain it was supposed to take?

The Foreman: Yes.

This concluded the inquiry.

RECENT ADVANCES IN ECONOMY OF FUEL.

MANUFACTURERS and engineers are daily becoming impressed with the necessity of exercising economy in all directions in the use of raw materials, especially fuel. To keep pace with foreign competition, and constant necessity of lowering prices, it is imperative for the manufacturer to be able to constantly reduce his working expenses, and this has taken place to a very large extent in economising fuel by the adoption of more perfect boilers, mechanical stokers and economisers. There is constantly more efficiency being obtained from coal in the direction of smoke consuming, having feed water at almost as high a temperature as the water in the boiler, the prevention of scale in the boilers by the use of condensed water, rain water, and specially softened water for feed purposes. By all these means there has recently been great improvement in the production of steam from a given amount of fuel. Then as regards the utilisation of the steam itself, a more general adoption of compound or triple condensing engines has enormously increased the power to be obtained from a certain amount of steam, both in land and marine engines; but there is one matter to which more attention ought to be given, namely, the prevention of the condensation of the steam between the boilers and the engines, or in the boilers themselves. We refer to the use of a perfect, or as nearly as possible perfect, non-conducting covering. There is usually a very considerable loss in transmitting steam, on account of both radiation and conducting of heat from pipes used in conveying the steam. This is more especially the case where thin wrought iron pipes are used, and as such pipes are being more generally adopted this question becomes of greater importance. In many cases, very long ranges

of these pipes are used. In colliery works, &c., pipes are used up to 10 inches diameter and only $\frac{1}{4}$ inch thick for conveying steam to a distance of, perhaps, half-a-mile or further. In such an extreme case it is easy to imagine what a loss must occur by condensation. To overcome this, it is necessary not only to have the pipes covered with some non-conducting material, but to use a substance that is the best non-conductor of heat it is possible to obtain, which material must have no action on wrought iron and be as light and strong as possible. For this purpose there has recently been introduced into this country by the Washington Chemical Company, of Washington, County Durham, a magnesia sectional covering which fulfils the above conditions. It is the lightest covering material yet introduced, its specific gravity being only .25. It has absolutely no action on wrought iron; in fact, acts as a preservative to any metal, and has the highest co-efficient of non-conduction of any material yet introduced. Its ease of application is so great that any ordinary workman can place or remove the covering.

THE GAS SUPPLY OF LONDON AND LEEDS.

LONDON.

THE quality of the gas supplied to the City of London for the week ending November 3rd, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.47	11.26	0.27	Nil.
South Metropolitan Gas Co.	6	16.65	11.26	0.33	Nil.
Commercial Gas Co.	2.	16.3	8.65	0.65	Nil.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended November, 12, 1894, has averaged 14.10 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Oct. 1894.	Nov. 1894.			Weight.	Volume.
Meadow Lane....	20, 25.	1, 6.	13.08	1.23	48.90	.05
New Wortley	18, 23.	2, 7.	16.01	2.12	57.05	.07
York Street	19, 24.	3, 8.	10.99	1.66	48.90	.06
Average at Works	..	..	14.10	1.47	48.90	.06
Average at East Parade	..	..	13.49	1.79	40.75	.05

During the month the average illuminating power of the Leeds Gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 hole, 17.8; and standard batswing, 18.4.

FATAL DOSE OF CHLOROFORM.—A sad case of death under chloroform occurred last week at Liverpool. Mrs. Lancaster, wife of Mr. C. H. Lancaster, architect and surveyor, went to the establishment of Mr. Osborn, dentist, to have some teeth extracted. Chloroform was administered by Dr. Larkin, but almost immediately the lady presented a peculiar appearance, and Dr. Briggs was called in, but only in time to find life extinct. Mrs. Lancaster, who was only about thirty, leaves five young children.

THE PETROLEUM TRADE OF PHILADELPHIA.—According to a contemporary, the condition of the export petroleum trade is highly satisfactory. At the time the report was written there was in the port the largest fleet of oil-vessels ever seen there at one time; and at least 15,000,000 gallons of crude and refined petroleum were required so as to supply the orders on hand for this particular class of vessels. The average cargo of a modern tank-ship is 1,500,000 gallons. The shipments from Philadelphia in one week lately amounted to 5,075,000 gallons; and it is believed that the year's exports will be the largest ever known.

ANSWERS TO CORRESPONDENTS.

- E. W.—You had better apply to G. F. Redfern and Co., 4, South-street Finsbury London, from whom you will get full particulars.
 W. C. Co.—They should have been sent. We will make inquiries at the other end.
 E. H. B.—Thanks for notification.
 C. E.—The matter is now in hand, and a proof will be duly submitted.
 J. M.—We are obliged. A copy shall be sent.
 L. AND T.—Next week most likely, but we will advise you.
 B. B.—It is rather a far cry.
 S. C.—We will send you a proof if you desire it.

Trade Notes.

RECONSTRUCTION OF THE CHESHIRE ALKALI COMPANY.—A meeting of the debenture holders of the Cheshire Alkali Company was held at the Crewe Arms Hotel, Crewe, on Tuesday, Mr. William Cash, chartered accountant, presiding, when the affairs of the company were discussed, and a resolution was passed approving of a scheme of reconstruction and arrangement on terms proposed. A meeting of the creditors of the company was held afterwards, Mr. Cash again presiding, when a similar resolution to that which the debenture holders had carried was adopted, in the interests of the shareholders.

THE DEPRESSION IN THE ALKALI TRADE.—On Wednesday notices were posted at the works of the United Alkali Company, Ltd., in the Runcorn and other districts, to the effect that the bleach and caustic departments will be closed a week hence for an indefinite period, which will certainly extend into the new year. This will mean several thousands of workmen being thrown out of employment. In addition to those engaged in the section named, many others in the chemical works will have to cease operations.

NEW CYANIDE WORKS.—Owing to the increasing consumption of potassium cyanide for the treatment of tailings for the recovery of gold, a new potassium cyanide works is being erected in Hamburg. The promoting company has a capital of £100,000.

PERSONAL.—Mr. E. A. Brotherton, of the firm of Messrs. Brotherton and Co., Birmingham, Leeds, and Wakefield, returns to business on Monday next. He has been away on an extensive tour through Canada and the United States. He left New York in the *Campania* on the 17th inst., and arrived at Liverpool on Friday.

THE JOHN STOTT LEGACY MEDAL.—The medal and premium left under this legacy has been awarded by the Science and Arts Committee of the Franklin Institute to Mr. P. W. Willans, of the well-known engineering firm of Willans and Robinson, Limited, Thames Ditton, Surrey, for improvements in steam engines.

A PENDING ELECTRICAL LAWSUIT.—The Electrical Power Storage Company have commenced a suit for infringement of the well-known Swan patent, and have issued a writ for injunction against the Chloride Electrical Storage Syndicate. The other defendants are Mather and Platt, Limited, and Dr. John Hopkinson, F.R.S.

THE GREETLAND DYEWORKERS' DISPUTE.—The dyers on strike from the works of the Greetland Dyeworks Company are still out, but in an interview with a Bradford reporter on Monday representatives of the men repudiated any connection with the combination, and insisted that their movement was one of wages only. Meanwhile, at the instance of the company, writs have been issued against two of the officials of the men's union on a charge of conspiracy. Extra police have been drafted into the district, although no serious disturbance has as yet occurred, or is anticipated.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products are quiet. Benzols are dull, at 1s. 1½d. to 1s. 2d. for 90's, and 1s. 2d. for 50/90's. Carbolic acids are fairly satisfactory; crude 60% is in moderate demand for export, at 1s. 6d., but crystals are flat, 40% being quoted at 5½d. Naphthas are quiet. Crude is cheaper, at 5¼d., and solvent remains unaltered at 1s. 2d. Creosote and anthracene are stationary. Pitch, f.o.b. East Coast, is firm at recent values for both spot and forward.

Sulphate of ammonia is quiet, and so far there is no sign of an acceleration of business with the end of the month. There is absolutely nothing doing for forward, and spot values are to a large degree nominal. The demand from usual consumers is very light. Beckton is quoted at £12, London outside makes £12, Liverpool £12, Hull £12, and Leith £12 to £11. 18s. 9d.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade the inquiry has been a little more active for near deliveries, owing to the intended stoppage of the works of the United Alkali Co. On the spot, however, there are no alterations in prices generally, which are as follows:—Bleaching powder, £7. 5s. nett f.o.r. makers' works, and £7. 10s. hardwoods f.o.b.; caustic soda, f.o.b. Tyne, 77%, £10. 10s.; f.o.b. Liverpool, 74%, £9 10s.; 70%, £8. 10s.; 60%, £7. 10s. nett per ton, 10-ton lots and upwards. Ammonia alkali, £3. 2s. 6d. bags, f.o.r. makers' works, for prompt and forward delivery. Soda crystals, £2. per ton, in bags, f.o.r. For chlorate of potash the price at present quoted is 5½d. per lb., and soda 7¼d. per lb. Sulphate of copper continues quiet, and prices are unchanged. Litharge dull, and business passing is very small; £12. to £13 10s. per ton, according to quality, are to-day's quotations. Acetate of lead is without improvement either in demand or price. Acetates of lime sell slowly for spot delivery, but forward sales are small; £6. 5s. for brown and £9. 15s. for grey may be taken as to-day's prices. Ammonia salts are in good demand, and prices are firm; Carbonate (lump), 3¼d.; grey muriate, £23.; white, £26.; salammiac, £37. and £39. Borax does not move satisfactorily, notwithstanding present very low prices; £18. 10s. to £20., according to quality, are to-day's quotations. Boracic acid steady, at £30. Oxalic acid in fair request at 3¼d. per lb. White powdered arsenic firm at £14. 5s. at Garston. Yellow prussiate of potash strong at 10½d. per lb. Carbolic acids firm; Crude, 60's, rather scarce at 1s. 6d. per gallon; crystal, 39/40, 5¼d. per lb. Sulphate of zinc moves more freely at £6. 15s. per ton.

REPORT ON MANURE MATERIAL.

The market has been quiet all round, there being very little disposition to buy, and any alteration in values has been against sellers. The nearest value of 75/80% Florida phosphate rock for 1895, steamer shipment, is probably 7¼d. per unit to United Kingdom, and 8d. to Continental ports, cost, freight and insurance; of South Carolina, 6¼d. per unit; of Peace River, 6½d. per unit; and of 55/60% Algerian, 6¼d. per unit. Continental descriptions may be had at about the parity of the above prices.

There is nothing fresh in River Plate bones; £4. 10s. may be quoted as full value of anything offering. Crushed Kurrachee bones are worth £4. 12s. 6d., and Bombay bone meal £4. 10s., ex quay Liverpool or Glasgow. Common grinding bones are worth £4. 5s. ex quay Liverpool, and parcels suitable for charring £4. 7s. 6d. per ton. Nitrate of soda is very quiet. On spot ordinary quality may be had at 8s. 9d., and fine at 8s. 10½d. per cwt. Due cargoes are worth barely 8s. 7½d. per cwt.; later sailings 8s. 9d. to 9s., according to position and test.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Over the past week the feeling in general chemicals has been one of increasing weakness, with an undeniable tendency to a giving way on the part of prices. A revision of the table rates, more especially for export business, is very generally held to be one of the necessities of the near future. As it is, both bleaching powder and caustic soda are procurable at still easier rates than those going a week ago.

Sulphate of ammonia shows no signs of stoppage on the downhill road of late weeks affected, and buyers seem to think it their best policy to postpone the fixing of their supplies for yet a while. The very few transactions recorded are for small lots which happen to be in immediate requisition. Towards the close of the week one or two lots of the sort were bought at £12. 2s. 6d., but by this time sellers' views are down quite to £12., or a little below that, and still without tempting the other section to any business worth mentioning.

Mineral oils and paraffins are all very busy, and re-sellers are looking for slightly heightened prices. Meanwhile the only positive mount is in paraffin spirit, now advanced to 5½d. per gallon.

Chief prices current are:—Soda crystals, 37s. 6d. to 38s. 6d. nett, Tyne; soda ash, 48/52, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52, £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74% £9. 7s. 6d., 70/72% £8. 7s. 6d., 60/62% £7. 7s. 6d., and cream 60/62% £7. 5s. all nett, Liverpool; bleaching powder, £7. 5s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¼d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £11. 17s. 6d. to £12. prompt, f.o.b. Leith;

sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1½d.; soft 1¼d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 5½d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 10,510 bags cane unrefined, 2,600 bags beet unrefined, and 9 700 bags beet refined.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 5½d., Middlesbrough 35s. 5d. cash, and hematite 43s. 2½d. Copper, flat: Chili bars, G. O. B.'s and G. M. B.'s, closed at £39. 12s. 6d. to £39. 17s. 6d. cash, and £40. to £40. 5s. three months. Tin, weaker: Straits closed at £64. 2s. 6d. to £64. 12s. 6d. cash, and £64. 5s. to £64. 15s. three months; Australian, £64. 5s.; English ingots, £68. 0s. Lead, easy: Spanish, £9. 15s.; English, £9. 17s. 6d. to £10. Silesian spelter, ordinary, firm, £14. 7s. 6d. Nickel, 1s. 4d. Antimony, £33. 10s. Quick-silver: first hands, £6. 15s.; second hands, £6. 8s. 6d. *Copper shares*, quiet: Cape, 1⅞ to 1⅞; Copiapo, 1⅞ to 1⅞; Libiola, 3¼ to 3½; Mason and Barry, 1½ to 1¾; Rio Tinto, 14⅞ to 15⅞; Tharsis, 4⅞ to 4⅞.

TYNE CHEMICAL REPORT.

TUESDAY.

In chemicals the dull tone still continues, and prices practically remain unaltered. Sulphur scarce, at £3. 17s. 6d. to £4. per ton. High strength caustic, £10. Bleaching powder, £7. 5s. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. 10s. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £3. 17s. 6d. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £1. 17s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, £1. 17s. 6d. per ton, nett; chlorate of potash, 5¾d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT unchanged, at 9s. 6d. per ton, f.o.b. Tees. Shipments are rather quiet at present.

COALS.—What little alteration in prices is of a downward tendency, though generally collieries keep well employed. To-day's quotations are: Best Northumbrian steam, 9s. 9d. to 10s. per ton; second qualities do., 8s. 9d. to 9s. per ton; small steam, 4s. 3d. to 4s. 6d. per ton; bunker coals quiet, 6s. 9d. to 7s. per ton; gas coals more doing, 7s. 6d. to 8s. per ton; coke unaltered, 15s. to 15s. 6d. per ton.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—In palm oil more has been doing, and to-day it is steadier and scarce. Lard has been sold to arrive at £22. 10s.; on spot £22. 15s. is quoted. Olive is steady, with a moderate demand, prices ranging from £31. to £35. according to quality. Linseed keeps firm at 21s. 6d. to 22s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed is quiet, the anticipated drop in values having taken place; Liverpool refined in barrels for export now being quoted 18s. 9d. to 19s. 6d. per cwt. Castor oil is steady, and moving fairly well. Good seconds Calcutta offers at 2½d. to 2¾d. per lb., and first pressure French is firmer at 2½d. to 2¾d. ex quay, and 2½d. store. Tallow is quiet but unaltered. Resin is firmly held, though the demand is rather small, prices remaining unaltered. Spirits of turpentine are steady. Mexican is offering at 20s., and American is in accord quoted 21s. to 21s. 3d. per cwt. Petroleum is without alteration, with American 4¼d. to 5½d., and Russian refined 3¾d. to 4d., per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead

unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

New Companies.

Soap and Chemical Co., Ltd.—CAPITAL, £5,000., in shares of £50. each. This company has been formed to manufacture soap and chemicals by certain processes, which have not been divulged.

Foreign and Colonial Rhea Fibre Treatment Syndicate, Ltd.—CAPITAL, £5,500., in shares of £1. each. This company has been formed to purchase and work patents for the treatment of Rhea and other fibres.

G. and T. Earle, Ltd.—CAPITAL, £100,000., in shares of £100. each. This company has been formed to acquire and carry on the business of cement manufacturers, etc., now carried on by Messrs. George and Thomas Earle, at Kingston-on-Hull. The subscribers to the memorandum of association are: F. Earle, The Park, Hull, cement manufacturer; G. H. Earle, Rookland, Torquay, Esq.; J. H. Earle, Cottingham, near Hull, cement manufacturer; E. W. Earle, 74, Beverly-road, Hull, cement manufacturer; E. Earle, 74, Beverly-road, Hull, cement manufacturer; E. Earle, 74, Beverly-road, Hull, widow; Isabella Earle, The Park, Hull, married woman.

Kroksholm Anglo-Swedish Fish Guano and Oil Co., Ltd.—CAPITAL, £25,000., in shares of £5. each, comprising 15,000 preference and 35,000 deferred shares. This company has been formed to take over, as a going concern, the business now carried on by Hart Bros., at Kroksholm, Lafo Island, Sweden, as manufacturers of oil and fish guano. The subscribers to the memorandum of association are: G. H. Anderton, Kilpin Lodge, Howden, chemical manufacturer; C. Colborne Graham, J.P., 165, Beverly-road, Hull; H. Whittick, The Newlands, Hull, yeast merchant; M. Saumchon, C.E., Hesse, East Yorks; W. C. Townsend, Hull, solicitor; J. W. Chilman, Hull, solicitor; T. Stimson, 22, Regent-street, Hull, solicitor's managing clerk.

The Solidified Petroleum Co., Ltd.—CAPITAL, £60,000., in 2,000 founders' shares at 1s., and 59,900 ordinary shares of £1. each. This company has been formed to deal in petroleum of all kinds, and oils as fuel, lubricants, etc. The subscribers to the memorandum of association, who have taken founders' shares, are: G. T. Whittle, 59, Earlsfield-road, S.W., secretary; E. Howlett, 71, St. Mary Axe, E.C., stationer; A. Methunne, Union Court, E.C.; R. D. Welch, Broadstreet House, E.C., managing director; F. R. Debney, Twickeney, secretary; H. D. Titterton, Roehampton, clerk; M. Hulf, 5, Pett-street, Bethnal Green, clerk.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Enamel Glass Ware. E. Böhm and J. Burchell. 21,211. November 5.
Welding Electrically. W. P. Thompson. 21,322. November 6.
Manufacturing Pyroxylin Compounds. R. C. Schüpphaus. 21,331. November 6.
Improvements in Evaporating Apparatuses. B. Abeil. 21,372. Nov. 6.
Apparatus for Making Infusions. J. R. Fothergill. 21,378. November 6.
Manufacture of Petroleum Briquettes. R. Denormandie and H. Hennebutte. 21,441. November 7.
Treatment of Alkaline Salts, or Salts of the Alkaline Earths. J. Y. Johnson. 21,447. November 7.
Heating and Purifying Water. W. H. Blakeney. 21,456. November 7.
Acid Resisting Lining for Metallic Vessels. R. Preston and T. Thornley. 21,447. November 8.
Dealing with Chimney Smoke and Fumes. F. W. Stevenson. 21,513. November 8.
Producing Vinegar by Means of Ozone. E. Andreoli. 21,519. Nov. 8.
Secondary Batteries. J. A. Timmis. 21,551. November 9.
Utilising Sulphate of Lime Sludge. A. Walker. 21,557. November 9.
Improved Construction of Thermometers. J. B. Lee. 21,615. Nov. 9.
Evaporating Apparatus. H. H. Lake. 21,633. November 9.
Treating Sewage and Waste Fluids by Precipitation and Utilising the Products. W. E. Adeney and W. K. Parry. 21,635. November 9.
Making Manure & Fuel from Brewers' Spent Hops. J. J. Adkins. 21,658. November 10.
Improvements in Carrying Tanks. J. M. McMurtrie. 21,667. Nov. 10.
Manufacture of Alkaline Cyanides. H. Y. Castner. 21,732. November 10.
Manufacture of Artificial Stone. E. Weckwarth and M. Haefl. 21,744. November 10.
Manufacture of Artificial Stone. E. Weckwarth and M. Haefl. 21,755. November 10.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

F. W. FLETCHER and H. E. STEVENSON, manufacturing chemists, North London Chemical Works, Holloway, N., and Mincing Lane, E.C., under the style of Fletcher, Fletcher, and Stevenson.

G. WILD, J. H. WILD, and W. WILD, paper manufacturers and merchants, Radcliffe, under the style of John Wild and Sons; as far as regards G. Wild, J. HOLDER and F. C. MARTIN, artificial manure and cattle food manufacturers, Tewkesbury, under the style of James Holder and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Adjudication.
CASTLING, JOHN CURTIS, Great Tower-street, E.C., and Loughton, Essex, cement merchant.

IMPORTS OF CHEMICAL PRODUCTS

AT THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 10th.

Acetanilide—

Germany, 7 pkgs. Beresford & Co.

Acetate of Lime—

U. States, 246 pkgs. W. Johnston & Co.

Acetic Acid—

Holland, 17 pkgs. J. Owen

100 A. & M. Zimmermann

Alkali—

Germany, 4 c. Craven & Co.

France, 40 Spies Bros. & Co.

Germany, 2,000 R. Waters

40 pkgs. L. & I. D. Jt. Co.

Anthracene—

Holland, 83 pkgs. Burt, Boulton, & Co.

Spain, 237 "

Antimony Ore—

Italy, 50 t. Novelli & Co.

Sydney, 4 Jenson Bros. & Co.

Arsenic—

Germany, 5 pkgs. W. J. Crook

Asbestos—

Italy, 445 Bot and Nich's Wf

315 British Asbestos Co.

Barytes—

Belgium, 116 cks. J. L. Lyon & Co.

" 22 Leach & Co.

" 22 C. Mangold & Co.

Holland, 111 W. Harrison & Co.

" 57 pkgs. D. Storer & Sons

" 23 cks. O'Hara & Hoar

Boracic Acid—

Italy, 12 pkgs. Coml L. Co.

Campor—

Hong Kong, 96 pkgs. S. Figgis & Co.

" 101 R. Warner & Co., Ltd.

Caoutchouc—

E. Indies, 190 c. T. Merry & Son

260 L. & I. D. Jt. Co.

Zanzibar, 43

5 Brown & Elmslie

88 Anderson, Weber, & Smith

Guatemala, 20 W. M. Smith & Sons

Germany, 20 H. Lambert

Madagascar, 64 Procter Bros.

France, 22 H. Johnson & Sons

U. States, 14 Major & Field

" 14 Stiebel Bros.

Carbonic Acid Gas—

Holland, 50 pkgs. Union Wvs. Co.

Castor Oil—

France, 60 brls. Beresford & Co.

" 20 Lucas & Spencer's

" 56 cks. J. Greig

Italy, 25 cs. Fuerst Bros.

France, 58 brls. Perkins & Homer

" 10 cks. Ross & Deering

Cellulose—

Germany, 280 pkgs. T. H. Lee

Chemicals (otherwise undescribed)

Belgium, 4 pkgs. T. H. Lee

Germany, 82 L. & I. D. Jt. Co.

" 136 A. & M. Zimmermann

" 35 T. Palmer

Holland, 2 L. C. & D. Rly. Co.

Belgium, 5 T. & H. Smith

U. States, 62 H. Wallace & Co.

Chrome Ore—

Sydney, 111 t. G. G. Blackwell, Sons, & Co.

Citric Acid—

Germany, 3 pkgs. A. & M. Zimmermann

Copperas—

Germany, 31 pkgs. City Coml. Wf, Ltd.

Cream of Tartar—

Spain, 20 pkgs. B. & F. Wf. Co.

France, 7 Ross & Deering

" 11 Domier & Co.

" 10 W. C. Bacon & Co.

" 7 London & W. Eng.

Spain, 4 W. C. Bacon & Co.

Holland, 8 C. Christophersen & Co.

" 16 B. & F. Wf. Co.

Italy, 12 Kirkpatrick & Co.

" 12 Thames S. T. & L. Co., Ltd.

Dextrine—

Germany, 50 pkgs. M. D. Co.

Dyestuffs—

Argols

Italy, 400 pkgs. Thames S. T. & L. Co., Ltd.

Cochineal—

France, 9 pkgs. W. Dutton & Co.

Canaries, 41 Sperling & Williams

" 6 Kuhnert, Henderson, & Co.

" 6 cts. Lewis & Peat

Cutch—

E. Indies, 300 pkgs. J. Owen

Rangoon, 500 A. Howden & Co.

" 200 Brown & Elmslie

" 80 cts. Arracan Co., Ltd.

N. Russia, 3 pkgs. Anderson, Weber, & Smith

Extracts—

U. States, 53 pkgs. W. Burton & Sons

Denmark, 30 J. Forsey

Austria, 400 A. J. Humphrey

Denmark, 1 A. F. White & Co.

Belgium, 5 Leach & Co.

France, 20 J. L. Levinstein & Sons

" 20 T. H. Lee

N. Russia, 200 Carey & Sons

" 2 M. D. Co.

Gambler—

E. Indies, 221 pkgs. Ashmore & Son

" 45 Brinkmann & Co.

" 222 Adamson, Gillfillan, & Co.

" 293 Beresford & Co.

" 440 G. Ward & Sons

" 912 L. & I. D. Jt. Co.

Indigo—

E. Indies, 12 cts. L. & I. D. Jt. Co.

" 31 Parry & Co.

" 28 Patry & Pasteur

Italy, 1 L. & I. D. Jt. Co.

E. Indies, 28 Arbuthnot, Latham, & Co.

Logwood—

Mexico, 30 t. A. A. Morlet & Co.

B. Honduras, 98 A. Hagan

Myrabolams—

E. Indies, 97 pkgs. L. & I. D. Jt. Co.

" 210 Darling Bros.

" 667 Baxter & Hoare

Safflower—

E. Indies, 13 pkgs. Lewis & Peat

Tanner's Bark—

Natal, 36 t. A. & W. Nesbitt

Melbourne, 76 Dyster, Nalder, & Co.

Turneric—

E. Indies, 999 pkgs. 300 bgs. H. A.

" 500 Litchfield & Co.

" 258 Williams, Torrey, & Co.

" 48 Devitt & Hett

" 1,000 Dalhan & Young

Valonia—

A. Turkey, 143 t. A. & W. Nesbitt

Dyestuffs (otherwise undescribed)

E. Indies, 3 pkgs. L. & I. D. Jt. Co.

Farina—

Germany, 603 pkgs. Ohlenschlager Bros.

" 20 Dutrulle, Solomons, & Co.

France, 2 Hernu, Peron, & Co.

Glucose—

Germany, 15 pkgs. 16 c. Spies Bros. & Co.

" 250 250 J. Barber & Co.

France, 100 100 L. Norman & Co.

" 600 600 R. G. Hall & Co.

U. States, 180 1,082 Soundy & Sons

" 300 1,735 I. Sutro & Co.

" 300 2,510 Union Lige.

" 50 300 Co., Ltd.

Guano—

Aden, 25 t. Culverwell, Brooks, & Co.

Manganese Ore—

Japan, 700 t. Fellows, Morton, & Co., Ltd.

Manure—

France, 480 t. A. Hunter & Co.

Germany, 5 J. Singen & Co.

" 240 Agricultural & Horticultural Assn.

Peru, 1,930 t. Anglo-Cont. Guano Wks.

E. Indies, 100 F. J. Cornwell, Son, & Co.

U. States, 41 H. A. Lane & Co.

Belgium, 203 Odan's Chemical Manure Co.

Methyl Alcohol—

Holland, 13 cks. Stein Bros.

Belgium, 23 dms. "

Mica—

U. States, 455 W. M. Smith & Sons

Naphtha—

Holland, 59 pkgs. W. G. Blagden

Nitrate of Lead—

Sydney, 6 pkgs. E. W. Carling & Co.

Ochre—

Holland, 28 cks. Philipps & Graves

France, 43 Taylor Bros.

Paraffin Wax—

U. States, 250 brls. H. Hill & Sons

" 84 L. Sutro & Co.

" 458 H. Hill & Sons

Rangoon, 900 cs. Anglo-American Oil Co.

U. States, 599 brls. W. Balchin

" 100 Corruganza Co.

Phosphate Rock—

Holland, 240 t. Lawes Manure Co., Ltd.

Algeria, 800 "

Belgium, 459 Anglo Cont. Guano Wks.

" 235 Lawes Manure Co., Ltd.

Pitch—

Germany, 105 cks. Fellows, Morton, & Co.

N. Russia, 340 brls. "

Plumbago—

Germany, 10 cks. T. H. Lee

Holland, 67 B. Gallaway

Germany, 4 H. C. Everett

Ceylon, 373 brls. J. Thredder, Son, & Co.

" 208 L. & I. D. Jt. Co.

Potassium Bicarbonate—

Holland, 6 cks. A. & M. Zimmermann

Potassium Carbonate—

Germany, 40 c. F. J. Putz & Co.

Canada, 50 J. Barber & Co.

Holland, 12 Beresford & Co.

Potassium Cyanide—

Germany, 125 pkgs. Page, Son, & Co.

" 10 Petri Bros.

Potassium Oxalate—

Holland, 20 pkgs. Beresford & Co.

Potassium Prussiate—

Germany, 10 cks. F. Boehm

Pumice Stone—

Italy, 5½ t. Blundell, Spence, & Co.

Pyrites—

Spain, 980 t. Anderson, Anderson & Co.

Quicksilver—

Italy, 1,000 btl. L. & I. D. Jt. Co.

Saltpetre—

Germany, 2 cks. Browne & Elmslie

" 40 J. Hall & Son

" 77 P. Hecker & Co.

E. Indies, 618 bgs. C. Wimple & Co.

" 360 Ralli Bros.

Sodium Acetate—

Holland, 30 pkgs. Philipps & Graves

" 37 A. & M. Zimmermann

Sodium Bicarbonate—

Belgium, 4 cks. H. Lambert

Sodium Hyposulphite—

Germany, 100 pkgs. Beresford & Co.

Holland, 205 Petri Bros.

Starch—

Belgium

Sweden, 645	C. S. Lovell
" 203	W. G. Taylor & Co.
Norway, 400	Moreton Cox Bros.
" 820	E. J. & W. Goldsmith
" 6 200	W. Cork, jun.
Norway, 1,600 pkgs.	Tough & Henderson
" 4,735	G. F. Green & Co.
Denmark, 360	C. S. Lovell
Portugal, 100	Tough & Henderson
Austria, 142	
Zinc Oxide—	
Germany, 122 brls.	M. Ashby, Ltd.
Holland, 20	F. Pryor
" 20 cks.	J. Matton
" 50	
Zinc Sulphate—	
Germany, 31 cks.	F. Smith

LIVERPOOL.

Week ending November 8th.

Acetate of Lime—	
New York, 817 bgs.	
Acetic Acid—	
Rotterdam, 5 blns.	
Barytes—	
Antwerp, 22 cks. 160 bgs.	
Hamburg, 10	
Rotterdam, 22	
Benzine—	
Philadelphia, 500 brls.	Meade-King & Robinson
Bone Ash—	
B. Ayres, 600 bgs.	H. Browne
Bone Meal—	
Bombay, 1,367 bgs.	
Carbolic Acid—	
Hamburg, 80 cs	
Castor Oil—	
Calcutta, 380 cs.	
Genoa, 19	
Leghorn, 20	
Cellulose—	
Trieste, 250 bls.	
Colours—	
Antwerp, 12 cks.	J. T. Fletcher & Co.
Hamburg, 5	30 cs.
Rotterdam, 1	
Cottonseed Oil—	
New York, 101 brls.	
Cream of Tartar—	
Barcelona, 10 cks.	2 pps.
Dyestuffs—	
Argols	
Oporto, 37 cks.	German Bank of London
Gutch	
Rangoon, 500 lxs.	
Divi Divi	
Hamburg, 577 bgs.	
Rio Hacha, 200 t.	Leech, Harrison & Co.
Extracts	
Antwerp, 25 brls.	J. T. Fletcher & Co.
Fiume, 265	De Clermont & Donner
" 600	Oak Extract Co., Ltd.
Bordeaux, 75 cks.	
New York, 175 bxs.	J. Atkin & Co.
Nantes, 575 brls.	Oak Extract Co., Ltd.
Fustic	
Trieste, qnty.	Auguste Cross & Co.
Madder	
Smyrna, 61 bls.	
Myrabolams	
Bombay, 3,040 bgs.	D Sassoon & Co.
" 2,932	E. D. Sassoon & Co.
" 2,210	Forbes, Forbes & Co.
" 3,000	R. J. Henderson
" 107	Graham & Co.
Shumac	
Trieste, 193 bls.	J. Fletcher, jun., & Co.
Palermo, 200	410 bgs.
Barcelona, 100 bgs.	Langstaffe & Co.
Turmeric	
Calcutta, 250 bgs.	
Valonia	
Patras, 451 bgs.	C. E. Syropulo
" 317	C. G. Papayanni
Smyrna, 6	G. E. Sayan & Co.
Syna, 200	
Smyrna, 214 t	Barry Bros.
" 310 bgs.	
Patras, 227	
Farina—	
Fiume, 190 bgs.	
Hamburg, 100	H. Tyrer & Co.
Glucose—	
New York, 799 brls.	
Guano—	
Malaga, 15 bgs.	W. & H. M. Girdling, Ltd.
Iron Oxide—	
Montreal, 15 pkgs.	W. Lester & Sons
Manganese Ore—	
Constantinople, 35 t.	
Mica—	
New York, 1 bx.	Simpson MacKirdy & Co.
Quebec, 7 bxs.	H. Baningarten
Mineral White—	
Fiume, 200 bgs.	
Naphtha—	
Philadelphia, 6,329 brls.	Meade-King & Robinson
Paint—	
Boston, 50 cs.	Bahr, Behrend & Ross
" 15	Frayer & Co.
Montreal, 9	Wingate & Johnston
Paraffin Scale—	
New York, 500 brls.	Standard Oil Co.
Paraffin Wax—	
Philadelphia, 29 brls.	
Phosphate—	
Montreal, 418 t.	
Plumbago—	
Genoa, 80 bgs.	
Potashes—	
Hamburg, 11 cks.	
Montreal, 50 brls.	
" 10	Newland & Co.
Potassium Carbonate—	
Hamburg, 60 cks	
Rouen, 49	Co-op. W'sale Society, Ltd
Potassium Fluoride—	
Rotterdam, 3 cs.	
Pumice Stone—	
Messina, 61 cks.	10 brls. 30 bgs.
Pyrites—	
Huelva, 4,696 t.	Matheson & Co.
Rosin—	
Charleston, S.C., 1,066 brls.	
Boston, 298	
Saltpetre—	
Hamburg, 12 cks.	5 brls
Soap—	
Bari, 108 cs.	
New York, 10	
" 1	W. Cuthbertson
Philadelphia, 1,073 pkgs.	
Naples, 80 cs.	
New York, 13 brls.	G.W. Wheatley & Co.
Boston, 4 cs.	W. Foggett
Soapstone—	
Philadelphia, 140 bgs.	
Soda—	
Rotterdam, 41 cks	
Sodium Nitrate—	
Caleta Buena, 15,371 bgs.	
Starch—	
Antwerp, 300 cs.	J. T. Fletcher & Co.
New York, 10 brls.	J. Armstrong & Co.
" 40 cs.	
Hamburg, 78	
Rotterdam, 161	
Stearine—	
Antwerp, 77 bgs.	2 cks.
Tallow—	
New York, 10 tcs.	J. D. Link & Son
B. Ayres, 289 bgs.	Warden & Co.
" 10 cks.	
Cartagena, 42 brls.	Bulnes & Co.
Tartar—	
Bordeaux, 11 cks.	
Tartaric Acid—	
Bordeaux, 1 cs.	
Hamburg, 10 cks.	
Varnish—	
New York, 1 cs.	Van Oppen & Co.
Waste Salt—	
Hamburg, 4 500 bgs	
" 80 t.	H. Tyrer & Co.

White Lead—	
Rotterdam, 103 cks.	
Wood Pulp—	
Skien, 4,271 bls.	
Gothenburg, 3,228	
Fredrikstad, 3,400	W. Hamer
Drammen, 1,500	
Rotterdam, 108	
Gothenburg, 15 pkgs.	Tullis & Co.
Zinc Oxide—	
Antwerp, 165 brls.	
New York, 50	
Rotterdam, 50 cks.	
Zinc Skimmings—	
New York, 7 cks.	
Zinc Sulphate—	
Rotterdam, 1 ck.	
Zinc White—	
Hamburg, 80 cks.	

MANCHESTER.

Week ending November 10th.

Acetic Acid—	
Rotterdam, 8 blns.	
Alumina Sulphate—	
Rotterdam, 28 cks.	
Aniline Colours—	
Hamburg, 6 cks.	
Antimony Oxalate—	
Rotterdam, 2 cks.	
Arachide Oil—	
Rotterdam, 10 cks.	
Barytes—	
Rotterdam, 133 bgs.	
Carbonic Acid—	
Rotterdam, 20 tubes.	
Chrome Alum—	
Rotterdam, 28 cks.	
Chromium Acetate—	
Rotterdam, 6 cks.	
Colours—	
Rotterdam, 54 cs. 70 cks. 10 bxs.	57 brls
Antwerp, 17	8
Hamburg, 13	
Dextrine—	
Stettin, 100 bgs.	
Dyestuffs—	
Alizarine	
Rotterdam, 54 cks.	
Annatto	
Bordeaux, 6 cks	
Extracts	
Bordeaux, 60 cks.	
Farina—	
Stettin, 5,530 bgs.	Brown, Geveke, & Co.
Glucose—	
Rotterdam, 4 cks	
Lead Acetate—	
Hamburg, 14 cks.	
Litharge—	
Rotterdam, 3 cks.	
Nitrate—	
Rotterdam, 5 cks.	
Oxokerit—	
Stettin, 13 bgs. 108 blks.	
Pitch—	
Rotterdam, 24 cks.	
Potash—	
Hamburg, 86 cks.	
Potassium Sulphate—	
Rotterdam, 100 cks.	
Pyrites—	
Huelva, 987,800 kilos.	
Saltpetre—	
Hamburg, 1 ck.	
Soap—	
Rotterdam, 2 cs.	
Sodium Nitrate—	
Rotterdam, 5 cks.	
Starch—	
Rotterdam, 240 cs.	
Antwerp, 60	
Hamburg, 124	100 bgs.
Tartar—	
Hamburg, 3 cks.	
Bordeaux, 1	
Tartaric Acid—	
Rotterdam, 43 cks.	
Tar Waste—	
Rotterdam, 7 cks.	
Ultramarine—	
Rotterdam, 5 cs.	
Wood Pulp—	
Norroping, 300 bls.	
Christiania, 2,075	
Halmstadt, 2,438	
Gothenburg, 1,388	
Drontheim, 427½ t.	
Zinc Oxide—	
Rotterdam, 100 brls.	
Hamburg, 2 cks.	
Zinc Sulphate—	
Rotterdam, 5 brls.	

HULL.

Week ending November 10th.

Acid—	
Rotterdam, 20 blns.	W. & C. L. Ringrose
Alum—	
Rotterdam, 38 cks.	W. & C. L. Ringrose
Aniline Colours—	
Amsterdam, 2 cks.	W. & C. L. Ringrose
Antimony Oxide—	
Rotterdam, 4 cks.	W. & C. L. Ringrose
Antimony Salts—	
Rotterdam, 1 ck.	W. & C. L. Ringrose
Barytes—	
Rotterdam, 122 cks. 50 bgs.	W. & C. L. Ringrose
Antwerp, 19	Bailey & Leatham
Binitro Toluol—	
Rotterdam, 6 cks.	W. & C. L. Ringrose
Castor Oil—	
Calcutta, 250 cs.	
Celulose—	
Hamburg, 266 bgs.	Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)	
Antwerp, 10 cks.	Bailey & Leatham
Bremen, 1 ck. 3 cs.	Veltmann & Co.
" 1 brl.	Todd & Son
Antwerp, 75 pkgs.	Wilson, Sons, & Co., Ltd.
Dunkirk, 20 pkgs.	"
" 20 dms.	Wilson, Sons, & Co., Ltd.
Hamburg, 3 pkgs.	"
Cod Oil—	
Aalesund, 10 brls.	Wilson, Sons, & Co., Ltd.
Bergen, 313	"
Colours—	
Rotterdam, 8 cks. 5 cs.	Hutchinson & Son
" 124 pks. 1 ck. 1 cs.	W. & C. L. Ringrose
Antwerp, 1 ck.	J. Pyefinch & Co.
Bremen, 2 cs.	Wilson, Sons, & Co., Ltd.
Antwerp, 23 pkgs.	Wilson, Sons, & Co., Ltd.
Copperas—	
Bremen, 25 bgs.	Veltmann & Co.
Cream of Tartar—	
Rotterdam, 2 cks.	Hutchinson & Son
Cryolite—	
Copenhagen, 3 cks.	Wilson, Sons, & Co., Ltd.
Dextrine—	
Stettin, 40 bgs.	Wilson, Sons, & Co., Ltd.
Dyestuffs—	
Alizarine	
Rotterdam, 16 cks. 5 cs.	W. & C. L. Ringrose
" 3 brls.	Hutchinson & Son
Cochineal	
Hamburg, 6 bgs.	Wilson, Sons, & Co., Ltd.
Indigo	
Amsterdam, 10 chts.	Wilson, Sons, & Co., Ltd.
Logwood	
Stettin, 1 bg.	Wilson, Sons, & Co., Ltd.
Shumac	
Limassol, 800 bgs.	
Valonia	
Smyrna, 50 t.	
Farina—	
Stettin, 100 bgs.	Wilson, Sons, & Co., Ltd.
" 200	"
Ghent, 264 bgs.	"

Glucose — Stettin, 200 bgs. Rotterdam, 60 Hutchinson & Son	
Kaolin — Rotterdam, 251 bgs. Hutchinson & Son	
Manure — Ghent, 820 80 t. Wilson, Sons, & Co., Ltd.	
Ochre — Rouen, 18 cks.	
Oxalic Acid — Rotterdam, 5 cks. Hutchinson & Son	
Phosphate — Rotterdam, 7 dms. Penny & Co	
Pitch — Amsterdam, 6 cks. H. F. Pudsey Rotterdam, 200 Wilson, Sons, & Co., Ltd. Dunkirk, 2 St. Petersburg, 89	
Potash — Hamburg, 4 cks. Bailey & Leatham	
Sodium — Hamburg, 20 bls. Wilson,	
Sodium Nitrate — Hamburg, 50 kgs. Wilson, Sons, & Co., Ltd.	
Starch — Bremen, 1,426 cs. Veltmann & Co.	
Stearine — Rotterdam, 13 bls. W. & C. L. Ringrose Antwerp, 70 pkgs. Wilson, Sons, & Co., Ltd.	
Tallow — St. Petersburg, 25 cks.	
Tar — Stockholm, 25 brls. Wilson, Sons, & Co., Ltd.	
Tartar — Bordeaux, 10 cks. Rawson & Robinson	
Tartaric Acid — Rotterdam, 2 cks. Hutchinson & Son Antwerp, 4 Bailey & Leatham Rotterdam, 2 W. & C. L. Ringrose	
Turpentine — Bordeaux, 26 brls. Rawson & Robinson	
Liban , 53	
White Lead — Rotterdam, 75 cks. Hutchinson & Son " 95 W. & C. L. Ringrose Antwerp, 42 Bailey & Leatham Wood Pulp — Hango, 307 bls. J. Good & Sons	

Zinc Oxide — Antwerp, 50 cks. Bailey & Leatham	
Zinc White — Rotterdam, 3 cks. W. & C. L. Ringrose	

GLASGOW.

Week ending November 15th.

Aniline — Hamburg, 1 ck.	
Arachide Oil — Rotterdam, 2 cks. J. Rankine & Son	
Asbestos — Quebec, 224 bgs. Montreal, 1 " 380 G. Gillespie & Co.	
Barytes — Rotterdam, 36 cks. 69 pkgs.	
Colours — Hamburg, 4 cks. Rotterdam, 19 11 cs. 13 brls. J. Rankine & Son " 20 pkgs	
Dyestuffs — " Alizarine Rotterdam, 4 cks. J. Rankine & Son	
" Argols Bordeaux, 51 bgs.	
Cutch Rangoon, 1,687 bxs.	
Extract New York, 110 bxs.	
Bordeaux , 15 cks.	
Baltimore , 75 brls.	
Indigo Rotterdam, 1 ck. J. Rankine & Son	
Madder Rotterdam, 20 cs. J. Rankine & Son	
Farina — Hamburg, 100 bgs.	
Glucose — New York, 550 brls.	
Guano — Iceland, 1,079 bgs.	
Lamp Black — Gothenburg, 5 brls. 20 cs.	
Lead Acetate — Rotterdam, 26 cks. J. Rankine & Son	
Paint — Montreal, 22 brls. 40 kgs. 2 cs.	
Phosphate — Bona, 500 t.	
Pyrites — Huelva, 1,370 t. Tharsis Co.	
Rosin — New York, 650 brls.	

Saltpetre — Calcutta, 1 cs.	
Soap — New York, 3 bxs. 50 cs. 400 brls.	
Stearine — Bordeaux, 50 bgs. Rotterdam, 15 cks. J. Rankine & Son	

Tallow — New York, 180 tcs. Rouen, 72 bgs.	
Tannin — Hamburg, 1 ck. 3 cs.	
Tar — New York, 300 brls.	
Tartar — Bordeaux, 7 cks.	
Tartar Emetic — Hamburg, 2 cs. 1 ck.	
Varnish — New York, 4 brls. 23 cs. Rouen, 6 cks.	

Waste Salt — Hamburg, 186 cks. qnty.	
White Lead — Rotterdam, 28 cks. J. Rankine & Son	
Wood Pulp — Drammen, 1 200 t. Clyde Paper Co. Gothenburg, 6,000 bls. Brown, Stewart & Co.	
" Montreal, 708 bdl. Christiania, 1,247 bls.	

Zinc Oxide — New York, 50 brls. Rotterdam, 25 cks. J. Rankine & Son	
Zinc White — Rotterdam, 100 cks.	

TYNE.	
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Week ending November 10th.

Acetic Acid — Rotterdam, 85 blns. Tyne S. S. Co.	
Alum Earth — Hamburg, 36 cks. Tyne S. S. Co.	
Barytes — Rotterdam, 5 cks. Tyne S. S. Co.	
Castor Oil — Antwerp, 28 brls. Tyne S. S. Co.	
Cod Oil — Bergen, 17 brls. Drontheim, 2	
Colours — Ghent, 4 brls. Tyne S. S. Co.	
Ochre — Rouen, 515 cks. W. Young & Co.	
Rosin — Charleston, 3 002 brls.	
Soap — Rotterdam, 1 cs. Tyne S. S. Co.	

Starch — Rotterdam, 78 cs. Tyne S. S. Co. Antwerp, 40 "	
Turpentine — Charleston, 75 cks.	
Wood Pulp — Laurvig, 120 bls.	
Zinc Oxide — Antwerp, 5 cks. Tyne S. S. Co.	

GOOLE.

Week ending November 7th.

Acetic Acid — Rotterdam, 1 cs.	
Alkali — Rotterdam, 4 dms. Calais, 11 cks.	
Alum — Rotterdam, 1 ck.	
Antimony — Boulogne, 7 cks.	
Dyestuffs — " Alizarine Rotterdam, 67 pkgs. 118 brls. " Extracts Ghent, 50 brls.	
Madder Rotterdam, 4 cks.	
Dyestuffs (otherwise undescribed) Rotterdam, 255 pkgs. Boulogne, 4 44 cks.	
Farina — Hamburg, 200 bgs. Delfsryhl, 140	
Lead Acetate — Hamburg, 18 cks.	
Potash — Dunkirk, 30 dms. Calais, 50	
Saltpetre — Hamburg, 32 cks.	
Soda — Rotterdam, 2 cks.	
Zinc Oxide — Antwerp, 45 brls.	

GRIMSBY.

Week ending November 10th.

Chemicals (otherwise undescribed) Rotterdam, 3 cks. Hamburg, 18 6 cs.	
Colours — Hamburg, 45 cks.	
Dyestuffs (otherwise undescribed) Dieppe, 15 cks.	
Tar Dyes — Hamburg, 23 cks. 48 pkgs. Rotterdam, 3 Antwerp, 1 cs. 70	
Zinc Ashes — Antwerp, 18 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			
Week ending November 14th.			
Acids — Algoa Bay, 3 cs. £11		Ammonium Chloride — Varna, 1 t. 4 c. £42	
Alkali — Brisbane, 8 t. 12 c. £70		Santos, 10 24	
Alum Cake — Calcutta, 18 t. 4 c. £66		Batoum, 2 10 89	
Ammonia (Liquid) — Rio de Janeiro, 2 cks. £12		Bourgas, 10	
Alexandria, 1 cs. 20		Rotterdam, 17 cks. 98	
Cape Town, 1 t. 40		B. Ayres, 7 13	
Ammonium Carbonate — New York, 30 pkgs. £225		Shanghai, 4 20	
Rouen, 2 t. 70		Constantinople, 2 10 25 brls. 186	
Lisbon, 5 5 c. 9		Galatz, 6 11	
Paris, 5 174		Ammonium Sulphate — Martinique, 45 t. 5 c. 628	
Dunkirk, 18 31		Cologne, 11 10 140	
Adelaide, 5 10		Hamburg, 100 1,225	
Bombay, 5 cs. 18		Antwerp, 10 2 122	
Melbourne, 10 28		Rotterdam, 153 1,875	
Lancaster, 10 28		Amorphous Phosphorus — Hong Kong, 1 cs. £20	
		Arsenic — Wellington, 1 t. £16	
		Yokohama, 2 30 kgs. 23	
		Napier, 2 32	
		Benzole Acid — Rotterdam, 1 cs. £25	
		Bleaching Powder — E. London, 1 t. £22	
		Boracic Acid — Melbourne, 10 cks. £107	
		Borax — Batoum, 1 t. £21	
		E. London, 5 cs 12	
		Santos, 12 c. 12	
		Carbonate of Lime — Bordeaux, 10 cks. £109	
		Carbolic Acid — Antwerp, 10 cks. £13	
		Yokohama, 4 t. 193	
		Melbourne, 1 4 c. 27	
		Carbon Bisulphide — Adelaide, 45 ctes. £63	
		Carbonic Acid Gas — Sydney, 2 cs £33	
		Lyttelton, 9 c. 10	
		Caustic Potash — Stockholm, 1 t. 10 c. £33	
		Sydney, 1 6 30	
		Melbourne, 3 1 48	
		Caustic Soda — Cape Town, 15 c. £24	
		Melbourne Wf., 13 13	
		Algoa Bay, 1 t. 1 31	
		Melbourne, 8 18	
		E. London, 1 1 25	
		Chemicals (otherwise undes.) — Shanghai, 1 cs. £78	
		Antwerp, 5 t. 64	
		Bombay, 3 18	
		Cape Town, 5 pkgs. 10	
		Auckland, 2 13 kgs. 54	
		Melbourne, 15 20 cks. 47	
		Citric Acid — Stettin, 1 ck. £32	
		Rotterdam, 1 t 13 c. 10 kgs. 272	
		Sydney, 1 134	
		Genoa, 1 10 210	
		Christiania, 1 8	
		Beyrout, 1 7	
		Algoa Bay, 2 11	
		Yokohama, 5 32	
		Calcutta, 1 8	
		Hamburg, 5 33	
		Lisbon, 6 cks. 47	

Coal Products—

Alizarine		
Lisbon, 3 cks.	£60	
Bombay, 25	153	
Reval, 17 cs.	980	
Montreal, 1 ck.	13	
Aniline Oil		
New York, 11 drs.	£330	
Aniline Salts		
New York, 25 cks.	£200	
Anthracene		
Dusseldorf, 61 cks.	£275	
Merdingen, 62	295	
Benzol		
Amsterdam, 24 puns.	£150	
Rotterdam, 53 44 dms.	775	
Naphtha		
Sydney, 20 dms.	£8	
Melbourne, 5 cs.	20	
Naphthalene		
Le Treport, 2 cks.	£19	
Hamburg, 100 bgs	50	
Melbourne, 12	23	
Paraffin Wax		
Wellington, 15 cs.	£50	
Melbourne, 15	55	
Pitch		
Naples, 1,793 t.	£2,600	
Dunkirk, 1 436	2,303	
New York, 4,096 bgs.	691	
Antwerp, 600 t.	1,050	
Genoa, 495 brls.	591	
Calcutta, 10	47	
Alexandria, 150	40	
Constantinople, 100	10	
Sydney, 15 cks.	174	
Boston, 1,000 bgs.	195	
Havre, 110 t.	195	
Pyridine Bases		
Rotterdam, 12 cks.	£75	
Tar		
Sydney, 15 brls.	£11	
Tar Oil		
Gothenburg, 250 cks.	£179	

Coal Products (otherwise undes.)—

Sydney, 25 dms.	£16
Melbourne, 10 brls.	8

Copperas—

Varna, 5 t. 5 c.	£10
Melbourne, 5	12

Copper Sulphate—

Melbourne, 4 t. 10 c.	£67
Amsterdam, 5 t.	85
Treport, 5	150
Dunkirk, 9	160
Rouen, 10	28
Galatz, 1 18	74
Sydney, 5	

Corrosive Sublimate—

Malta, 2 c.	£12
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Cream of Tartar—

Nelson, 10 c.	£36
New Plymouth, 7	24
Auckland, 1 t.	60
Adelaide, 10 cs. 15	228
Sydney, 4 3	275
Gisborne, 3	11
Melbourne, 7 10	492
Santos, 12	40
Canterbury, 1	66

Disinfectants—

Wellington, 19 cs.	£61
Santos, 10 c.	10
Bombay, 476 pkgs.	236
Auckland, 5 cs. 10 dms.	15
Melbourne, 34 383 pkgs.	301

Guano—

Demerara, 55 t.	£550
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Hypophosphite of Lime—

Philadelphia, 9 c.	£164
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Manure—

Guadeloupe, 2 t. 5 c.	£60
Barbadoes, 30	255
Bundaberg, 9 12	80
Trinidad, 110 t.	1,100

Muriatic Acid—

Oporto, 10 cbs.	£910
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Nitric Acid—

Jersey, 20 cbs.	£40
Cape Town, 3 c.	£11

Oxalic Acid—

Sydney, 1 t. 7 c.	£49
Yokohama, 5 brls.	£18

Phosphate—

Martinique, 80 t. 18 c.	£160
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Phosphoric Acid—

Trinidad, 1	£40
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Phosphorus—

Melbourne, 12 cs. 3 c.	£152
Wellington, 2	20
Oporto, 2	30

Potash—

Melbourne, 14 c.	£23
Wellington, 1 t. 5	51

Potash Crystals—

Toronto, 7 pkgs.	£25
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Potassium Chlorate—

Gothenburg, 4 kgs.	£11
Calcutta, 1 t. 4 c.	12
Odessa, 1 t. 1	69

Potassium Chloride—

Martinique, 45 t.	£398
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Potassium Cyanide—

Rio de Janeiro, 1 t. 4 c.	£200
Calcutta, 1	7
E. London, 5	23

Saltpetre—

Adelaide, 1 t. 5 c.	£27
Nelson, 10	12
Amsterdam, 1 5	29
Madeira, 10	14
Victoria (Brazil), 1	23
M. Video, 1	22
Napier, 5	6
Melbourne, 4 10	101

Sheep Dip—

B. Ayres, 100 cs. 5 t. 7 c.	£369
Melbourne, 2 2 105 dms	83
Mossel Bay, 47	17
Cape Town, 570	123
Gallegos, 1 7	60
San Julian, 20 cs. 89 pkgs.	248
Santa Cruz, 15 64 10 cks.	296

Slag—

Stettin, 150 t.	£300
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Soda—

Sulina, 1 t. 6 c.	£6
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Soda Crystals—

Sydney, 1 t. 2 c.	£9
Adelaide, 16 8	34

Sodium—

New York, 3 t.	£446
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Sodium Acetate—

Melbourne, 1 t. 3 c.	£25
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Sodium Bicarbonate—

Nelson, 2 t.	£15
Rosario, 1	7
Calcutta, 5 c.	12
Brisbane, 1	7
Barbadoes, 1 10	11
Calicut, 2 5	14
Cape Town, 6	5
Madras, 1 4	9

Sodium Sulphate—

Ghent, 70 t.	£105
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Sodium Tartrate—

Toronto, 1 t. 4 c.	£60
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Sulphur—

Trinidad, 1	£6
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Sulphuric Acid—

Galatz, 2 t.	£20
Algoa Bay, 20 cbs.	14
Calicut, 20 cs.	26
Cape Town, 3 1 c.	19

Sulphuric Anhydride—

Batoum, 100 cs.	£372
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Superphosphate—

Sydney, 169 t. 15 c.	£1,007
Martinique, 367 10	1,103

Tartaric Acid—

Nelson, 3 c.	£18
Sydney, 20 kgs. 1 t. 5	212
Hamburg, 10	50
Adelaide, 3 15	369
Algoa Bay, 1 cs	6
Melbourne, 3 10 10 kgs.	375

LIVERPOOL.

Week ending November 14th.

Acetic Acid—

Lisbon, 1 t.	1 q. £15
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Albumen—

New York, 5 t. 10 c.	£136
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Alum—

Havana, 4 t. 18 c.	1 q. £25
Petrolia, Ont., 7	13
Montreal, 13 11	67
London, Ont., 2 5	11
Sydney, 6 14 3	31
Galatz, 3 3	14
Ibrail, 5 2	22
Melbourne Wf., 2 2	11
Vigo, 10 6	56
San Francisco, 14 14 3	66

Alumina Sulphate—

Montreal, 16 t. 12 c.	3 q. £104
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Ammonium Carbonate—

Alexandria, 2 c.	£3
Portland, M., 10	18

Ammonium Chloride—

Galatz, 1 t. 16 c.	£66
Bourgas, 1	28
Trieste, 2	70
Ibrail, 2	71
Stockholm, 2	48
Corunna, 2 2 2 q.	5
Volo, 2 2	5
Alexandria, 15 3	386
Philadelphia, 15 3	386

Ammonium Sulphate—

Valencia, 47 t. 10 c.	2 q. £622
Barcelona, 25 18	338
Hamburg, 51 8 1	714
Bordeaux, 4 15 3	56
Gd. Canary, 3 10	46
Venice, 10 2 2	128

Antimony—

Lisbon, 2 cks.	
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Antimony Ore—

Iquique, 1 ck.	
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Arsenic—

Gothenburg, 1 t. 10 c.	£23
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Asbestos—

Rio de Janeiro, 8 cs.	
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Barium Chlorate—

Stockholm, 4 c.	£19
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Bleaching Powder—

Alicante, 28 cks.	
Ancona, 58	
Bombay, 51 5 cs.	
Boston, 628	
Calcutta, 18 175	
Dunkirk, 15	
Genoa, 15	
Messina, 9	
Montreal, 17	
New York, 135	
Paris, 23	
Passages, 15	
Philadelphia, 252	
Portland, 15	100 brls.
Rouen, 15	
Corunna, 8	

Boracic Acid—

Havre, 1 t. 2 c. 1 q.	£35
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Borax—

Melbourne, 2 t.	2 q. £42
Rotterdam, 11 cks. 3	14
N. York, 15 2 9	211
Cape Town, 5 3	8
Halifax, 3 19	75
Montreal, 2 3	42
Stettin, 8 11	14
Genoa, 8	164
Antwerp, 13 6	268

Caoutchouc—

Axim, 1 trs.	
Rangoon, 2 cs. 1 bl.	
Rio de Janeiro, 8	
Santos, 2	
Smyrna, 1	

Carbolic Acid—

New York, 4 c.	£8
Hamburg, 3 t. 4	151
Rotterdam, 5 5	264

Caustic Potash—

Bombay, 10 c.	£13
Newport News, 2 t. 8	80

Caustic Soda—

Alexandria, 63 dms.	20 cs.
Algoa Bay, 45	
Ancona, 65	
Antwerp, 10	
Aracaju, 10	
Bahia, 50 brls.	
Barcelona, 275	
Bari, 18	
Bombay, 110 2	
Boston, 100	
B. Ayres, 51	
Calcutta, 32	
Callao, 10	
Ceara, 10	
Chicago, 200	
Cleveland, 50	
Fiume, 30	
Galatz, 413	
Genoa, 224	
Hiogo, 50	
Kingston, Ja., 5	
Leghorn, 205	
Melbourne, 19	
M. Video, 50	
Montreal, 89	
Naples, 62	
Newport News, 200	
New York, 463	200 10
Odessa, 113	
Paris, 45	

Pernambuco, 43

Portland, 180	
Valparaiso, 90	
Yokohama, 285	
Bilbao, 16	
Carupano, 20	
Galveston, 100	
Guantanamo, 15	21 pkgs
Halifax, 11	
Havana, 12	
Malta, 11	
Petrolia, 40	
Puerto Cabello, 30	
Rotterdam, 119	
Rouen, 20	
St. John's, Nfld., 35	
Seville, 250	60 brls.
Shanghai, 35	
Talcahuano, 40	
Venice, 18	
Vera Cruz, 42	
Volo, 40	

Chemicals (otherwise undes.)—

Santos, 4 c.	£7
Bussorah, 15	27
Naples, 3 t. 10	129
Hamburg, 10	20
Rotterdam, 5	10
Stettin, 2 19 1 q.	110

China Clay—

Boston, 939 t. 2 c.	
Philadelphia, 100	
Rio de Janeiro, 16 cks. 20 bgs.	

Chromim Acetate—

Naples, 1 t.	£56
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Coal Products—

Aniline Colours	
Barcelona, 2 cs. 3 cks.	
Bombay, 3	
Calcutta, 1	
Aniline Oil	
Montreal, 2 dms.	
Aniline Salts	
Boston, 72 cs.	
Montreal, 20	
New York, 11 cks.	
Pitch	
Antwerp, 94 t.	
Philadelphia, 2 brls.	
Rouen, 2 cks.	
Tar	
Barcelona, 1 dm.	
Funchal, 4 brls.	
Loango, 10	
Philadelphia, 100	
Opobo, 1	
Rio Hache, 20 cs.	

Cobalt Oxide—

Nagasaki, 2 c.	£65
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Copperas—

Melbourne, 5 t.	£8
Alexandria, 27	43
Calcutta, 14 1 c. 1 q.	28

Copper Sulphate—

Farina—
Rio de Janeiro, 10 sks.
Paraffin Wax—
Barcelona, 40 bgs.
Pitch—
Antwerp, 253 t. 13 c.
Rotterdam, 100
Zinc Chloride—
Rio de Janeiro, 10 cks.

HULL.

Week ending November 10th.

Alkali—
Abo, 17 cks.
Ammonium Sulphate—
Antwerp, 500 bgs.
Ghent, 200
Rotterdam, 825
Stettin, 788
Benzol—
Rotterdam, 50 cks.
Bleaching Powder—
Abo, 2 cks.
Genoa, 40
Libau, 3
Naples, 34
Riga, 41
Stettin, 165
Borax—
Riga, 3 cks.
Carbolic Acid—
Amsterdam, 11 cks.
Caustic Soda—
Abo, 25 kgs.
Bari, 71 dms.
Genoa, 120
Libau, 96
Leghorn, 35
Naples, 22
Rotterdam, 40
Riga, 337
Stettin, 30
Venice, 20
Chemicals (otherwise undescribed)
Amsterdam, 24 cks. 32 pgs.
Antwerp, 8 24 cs.
Bremen, 2
Bari, 12
Copenhagen, 20
Constantinople, 240
Christiania, 1 27 404 silbs.
Gothenburg, 209 14 5 cs.
Genoa, 17 46
Hamburg, 23 11 151
Konigsberg, 11 10
Libau, 100 346 bgs.
Marseilles, 2
Naples, 12
Odessa, 12
St. Petersburg, 400 18 cs.
Rotterdam, 10 40
Riga, 24 105
Stettin, 28 351
Trieste, 1
New York, 25
Cottonseed Oil—
Antwerp, 242 c.
Christiansand, 6
Fiume, 99
Gothenburg, 161
Hamburg, 907
Rotterdam, 1,489
Stockholm, 70
Stettin, 200
Trieste, 605
Venice, 13
Dyestuffs (otherwise undescribed)
Antwerp, 77 bgs.
Konigsberg, 1 ck.
St. Petersburg, 35
Rotterdam, 2
Riga, 4
Stettin, 200
Linseed Oil—
Amsterdam, 68 c.
Bremen, 166
Bergen, 52
Christiansand, 85
Christiania, 236
Drontheim, 27
Gothenburg, 99
Hamburg, 460
New York, 33
Rotterdam, 219
Stockholm, 200
Stavanger, 69
Trieste, 22
Stralsund, 2,500
Manure—
Stettin, 495 t.

Mineral White—
Harlingen, 200 bgs.
Painters' Colours—
Amsterdam, 27 cks. 18 pgs.
Antwerp, 22 283 2 dms.
Bremen, 5
Copenhagen, 29
Christiania, 34
Drontheim, 1 cs. 2 10 40
Dunkirk, 1
Gothenburg, 1
Genoa, 42
Ghent, 10
Hamburg, 54
Harlingen, 5
Konigsberg, 5
Libau, 1
Leghorn, 12
Marseilles, 3
New York, 50 50
Naples, 1
Odessa, 30
Palermo, 1
St. Petersburg, 6 cs.
Rotterdam, 1
Rouen, 9
Stettin, 15 115
Riga, 15
Pitch—
Antwerp, 306 t.
Christiania, 28 cks.
Salt—
Calcutta, 422 t.
Soap—
Amsterdam, 1 cs.
Christiania, 2
Drontheim, 40
Ghent, 64
Stockholm, 1
Tallow—
Amsterdam, 1 ck.
Abo, 146
Gothenburg, 5
Rotterdam, 27
Stockholm, 5
Tar—
Amsterdam, 10 cks. 1 dm.
Copenhagen, 10
Genoa, 1
Marseilles, 150
Rotterdam, 2
Turpentine—
Amsterdam, 1 dm.
Varnish—
Amsterdam, 3 dms. 5 cks.
Antwerp, 1
Gothenburg, 2 3 cs.
Genoa, 2 3
Ghent, 2 3
Hamburg, 25 5
Riga, 23

GLASGOW.

Week ending November 15th.

Ammonium Sulphate—
Philadelphia, 102 t. 2 c. £1,280
B. Guiana, 203 10¼ 2,577
Borax—
Canada, 15 t. 12 c. £377
Montreal, 6 18¼ 146
Caustic Soda—
B. Guiana, 3 t. 12 c. £30
Chemicals (otherwise undescribed)
Rotterdam, 2 cks. £21
Coal Products—
Anthracene
Gothenburg, 33 t. 15 c. £100
Creosote Oil
Christiania, 30 brls. £23
Konigsberg, 45 cks. 35
Pitch
Canada, £140
Gothenburg, 117 t. 17¼ c. £280
Madras, £36. 108
Calcutta, £45
Boston, 26 2½ 50
New York, 47 15½ 74
Konigsberg, 30 60
Hamburg, 1,200
Tar
Canada, £345
Boston, 49 t. 10 c. 100
New York, 100 9 221
Riga, 150 brls. 90
Konigsberg, 325 150
Montreal, 185
Tar Oil
Konigsberg, 2 brls. £1
Hamburg, 1 dm. £22. 108
Coal Products (otherwise undes.)
Rotterdam, 16 dms. £210

Copperas—
Montreal, 26 t. 13¼ c. £34
Dyestuffs—
Extracts
Boston, 3 t. 12¼ c. £133
Dyestuffs (otherwise undescribed)
Canada, 3 t. 3¼ c. £59
Montreal, 11 19¼ 483
Glucose—
New York, 624 glns. £140
Iodine—
Rotterdam, 1 ck. £265
Linseed Oil—
Rangoon, 1 t. 5 c. £27
Canada, 20 18 370
Montreal, 11 14¼ 276
Manganese—
Antwerp, 3 t. 1¼ c. £23
Manure—
Jersey, 182 t. £1,330
Paint—
Rangoon, £39
Calcutta, 21
Painters' Colours—
Colombo, £18
Calcutta, 542
Boston, 389
Antwerp, 2 c. 12
Paraffin Wax—
Trieste, 22 t. 11 c. £591
Christiania, 2 64
Rotterdam, 11 240
Riga, 7 164
Danzig, 10 235
Potassium Bichromate—
Gothenburg, 5 t. 4 c. £185
Christiania, 12 cks. 200
Bergen, 1 15
Rotterdam, 12 204
Konigsberg, 1 14
Potassium Prussiate—
New York, 9 t. ½ c. £768. 188.
Rosin—
B. Ayres, 54 t. 8¼ c. £209
Rosin Oil—
Rotterdam, 10 brls. £20
Amsterdam, 12 24
Slag—
Rotterdam, 346 t. £265
Soap—
New York, 27 t. £25
Sodium Sulphate—
Canada, 11 t. ¾ c. £31
Montreal, 10 3½ 28
Sulphur—
B. Guiana, 9 t. 2¼ c. £43
Sulphuric Acid—
Rangoon, £267
Tallow—
Rotterdam, 3 t. 5 c. £105
White Lead—
Montreal, 9 t. 17¼ c. £170
Calcutta, 3 1¼ 64
Antwerp, 1 1½ 25

TYNE.

Week ending November 10th.

Alkali—
Antwerp, 5 t. 7 c.
Amsterdam, 6 16
Antimony—
Hamburg, 1 t. 10 c.
Rotterdam, 5
Arsenic—
Montreal, 28 t. 13 c.
Asbestos—
Mazarron, 7 lbs.
Barium—
Rouen, 19 t. 12 c.
Barytes—
Hamburg, 100 t.
Bleaching Powder—
Hamburg, 100 t. 2 c.
Antwerp, 59 16
Oporto, 5 2
Stockholm, 30 1
Gothenburg, 1 1
Harlingen, 5 1
Lisbon, 30 5
Christiania, 38 7
Rotterdam, 24 13
Drontheim, 9 17
Copenhagen, 4 19
Barcelona, 2 16
Amsterdam, 48 6
Caustic Soda—
Rouen, 3 t. 9 c.

Valencia, 21 2
Stockholm, 48 14
G. moa, 17 1
Copenhagen, 1 3
Barcelona, 8 15
Amsterdam, 14 8
Copperas—
Bergen, 3 t. 14 c.
Litharge—
Hamburg, 2 t. 5 c.
Oporto, 1 9
Christiania, 11
Amsterdam, 5
Magnesia—
Hamburg, 14 c.
Antwerp, 2
Genoa, 15
Barcelona, 6 t.
Manganese—
Stockholm, 10 t. 7 c.
Manure—
Valencia, 144 t. 10 c.
Ochre—
Montreal, 1 t. 4 c.
Oxalic Acid—
Oporto, 1 t.
Paint—
Antwerp, 1 t.
Rotterdam, 1 4 c.
Rosin—
Mazarron, 5 lbs.
Salammoniac—
Barcelona, 12 c.
Slag—
Rotterdam, 249 t.
Soda—
Hamburg, 21 t. 11 c.
Stockholm, 55 4
Montreal, 45
Christiania, 10 2
Rotterdam, 39 7
Drontheim, 5
Montreal, 50
Soda Ash—
Stockholm, 45 t. 4 c.
Sodium Hyposulphite—
Valencia, 1 t. 2 c.
Sulphate of Lime—
Genoa, 1 t. 11 c.
Sulphur—
Antwerp, 15 t.
Christiania, 50
Superphosphate—
Valencia, 15 t. 1 c.
Tar—
Copenhagen, 9 t. 18 c.
White Lead—
Hamburg, 6 c.
Montreal, 20 t. 5
Copenhagen, 2 14

GOOLE.

Week ending November 7th.

Benzol—
Rotterdam, 75 cks.
Chemicals (otherwise undescribed)
Hamburg, 23 cks.
Coal Products (otherwise undes.)
Hamburg, 1 ck.
Dyestuffs (otherwise unlescribed)
Hamburg, 21 cks.
Manure—
Rotterdam, 326 bgs.
Boulogne, 39
Pitch—
Dunkirk, 88 t.
Antwerp, 420
Rotterdam, 250

GRIMSBY.

Week ending November 10th.

Chemicals (otherwise undescribed)
Dieppe, 2 cks.
Hamburg, 6 brls.
Malmo, 1 ck. 5 tcs.
Dyestuffs (otherwise undescribed)
Dieppe, 2 cks. 1 cs.
Coal Products (otherwise undes.)
Dieppe, 160 cks.
Pitch—
Antwerp, 35 t.

PRICES CURRENT.

WEDNESDAY, NOV. 21st, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	& 10/9
" Glacial	"	50/-	
Arsenic S.G., 2000°	"	0	14 6
Fluoric	per lb.	0	0 3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
" (Cylinder), 30° Tw.	"	0	3 0
Nitric 80° Tw.	per lb.	0	0 1½
Nitrous	"	0	0 1½
Oxalic	nett	0	0 3½
Phosphoric, 1750°	"	0	0 11
Picric	"	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
" (monohydrate)	"	5	10 0
" (Pyrites, 168°)	"	3	0 0
" " 150°	"	1	5 0
" " (free from arsenic, 145°)	"	1	6 0
Sulphurous (solution) S.G. 1025	"	3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric	"	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	"	4	17 6
Alumina Sulphate (pure)	"	5	0 0
Aluminoferri	"	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	"	0	1 4
" 880=28° B.	per lb.	0	0 3
" =24° B.	"	0	0 2½
" Carbonate	nett	0	0 3½
" Muriate	per ton	23	10 0
" " (sal-ammoniac) 1st & 2nd	per cwt.	39/-	& 37/-
" Nitrate	per ton	41	0 0
" Phosphate	per lb.	0	0 10½
" Sulphate (grey) London	per ton	12	0 0
" " (grey) Hull	"	12	0 0
Aniline Oil (pure)	per lb.	0	0 5½
Aniline Salt	"	0	0 5½
Antimony	per ton	33	10 0
" (tartar emetic)	per lb.	0	0 9½
" (golden sulphide)	"	0	0 10
Barium Chloride	per ton	6	10 0
" Carbonate (native)	"	3	7 6
" Sulphate (native levigated)	"	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	5 0
" Liquor, 7 %	"	3	10 0
Bisulphide of Carbon	"	11	5 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	5 0
China Clay (at Runcorn) in bulk	"	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta	"	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	1 2
" 50/90	"	0	1 2
Carbolic Acid (crystallised 40°)	per lb.	0	0 5½
" (crude 60°)	per gallon	0	1 6
Creosote (ordinary)	"	0	0 2
" (filtered for Lucigen light)	"	0	0 2½
Crude Naphtha 30 % @ 120° C.	"	0	0 5½
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	"	1	13 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 2
Lucigen" and "Wells Oils	"	0	0 2½
Copper	per ton	40	0 0
" Sulphate	"	14	10 0
" Oxide (copper scales)	"	39	0 0
Glycerine (crude)	"	15	0 0
" (distilled S.G. 1250°)	"	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	5 0
" Sulphide (antimony slag)	"	2	0 0
Lead (sheet) for cash	"	11	0 0
" Litharge Flake (ex ship)	"	13	10 0
" Acetate (white)	"	25	0 0
" " (brown)	"	15	10 0
" Carbonat.: (white lead) pure	"	16	0 0
" Nitrate	"	20	0 0

Lime, Acetate (brown)	per ton	6	7 6
" " (grey)	"	10	0 0
Magnesium (ribbon and wire)	per oz.	0	2 5
" Chloride (ex ship)	per ton	2	10 0
" Carbonate	per cwt.	1	17 6
" Hydrate	per ton	17	0 0
" Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	"	17	15 0
" Borate	per cwt.	2	15 0
" Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	1 10
Naphtha (Wood), Solvent	"	0	3 0
" " Miscible, 60° O.P.	"	0	3 6

Oils:—			
Cotton-seed	per on	19	10 0
Linseed	"	21	10 0
Petroleum, American	per gallon	0	0 5½
Stearine	per ton	26	0 0
Phosphorus (yellow)	per lb.	0	2 1
" (red)	"	0	2 8
Potassium (metal)	per oz.	0	3 7
" Bichromate	per lb.	0	0 4½
" Carbonate, 90% (ex ship)	per ton	16	15 0
" Chlorate	per lb.	0	0 5½
" Cyanide, 98%	"	0	2 2
" Hydrate (Caustic Potash) 80/85 %	per ton	21	10 0
" " (Caustic Potash) 75/80 %	"	20	0 0
" " (Caustic Potash) 70/75 %	"	19	10 0
" Nitrate (refined)	per cwt.	1	2 6
" Permanganate	per cwt.	3	2 6
" Prussiate Yellow	per lb.	0	0 10½
" Sulphate, 90 % (ex ship)	per ton	9	15 0
" Muriate, 80 % (do.)	"	8	7 6
Silver (metal)	per oz.	0	2 4½
" Nitrate	"	0	2 10
Sodium (metal)	per lb.	0	3 0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
" " (Caustic Soda-ash) 48 %	"	4	0 0
" " (Carb. Soda-ash) 48 %	"	4	0 0
" " (Alkali) 58 %	"	3	15 0
" " (Soda Crystals)	"	2	5 0
" Acetate (ex-ship)	"	14	5 0
" Arsenate, 45 %	"	11	0 0
" Chlorate	per lb.	0	0 7½
" Borate (Borax)	net, per ton	20	0 0
" Bichromate	per lb.	0	0 3½
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	10	7 6
" " (74 % Caustic Soda)	"	9	7 6
" " (70 % Caustic Soda)	"	8	7 6
" " (60 % Caustic Soda)	"	7	7 6
" " (60 % Caustic Soda, cream) (f.o.b.)	"	7	5 0
" Bicarbonate	"	5	12 6
" Hypsulphite	"	5	10 0
" Manganate, 30%	"	16	0 0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 9
" Nitrite, 98 %	per ton	29	0 0
" Phosphate	"	15	0 0
" Silicate (glass)	per ton	5	2 6
" " (liquid, 100° Tw.)	"	4	5 0
" Stannate, 40 %	per cwt.	3	2 9
" Sulphate (Salt-cake)	per ton	0	17 6
" " (Glauber's Salts)	"	1	5 0
" Sulphide	"	8	10 0
" Sulphite	"	5	7 6
Strontium Hydrate, 100%	"	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7
" Barium, 95 %	"	0	0 5
" Potassium	"	0	0 7½
Sulphur (Flowers)	per ton	7	5 0
" (Roll Brimstone)	"	5	5 0
" Brimstone: Best Quality	"	3	15 0
Superphosphate of Lime (26%)	"	2	7 6
Tallow	"	24	10 0
Tin Crystals	per lb.	0	0 6
" English Ingots	"	69	0 0
Zinc (Spelter)	per ton	14	7 6
" Chloride (solution, 100° Tw.)	"	5	7 6

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Communications for the Editor, if intended for insertion in the current week's issue, should reach the office not later than **Tuesday morning**.

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—

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Advertisements intended for insertion in the current week's issue should reach the office by **Wednesday morning** at the latest.

CURRENT TOPICS.

WHERE IGNORANCE IS BLISS.

WE had occasion only a few weeks since to say a few words about an article which appeared in a well-known financial paper, couched in the tones of the ultra alarmist, and which was full of forebodings as to the future of the United Alkali Company, Limited. How great was the dependence that could be put upon the article our past remarks have already shown; but if any further evidence were needed in support of our contention that the article in question was an interested inspiration, the paper so prone to pessimistical prophecies about the United Alkali Company has since of itself afforded the same.

After giving currency to the doubtful statements about the intentions of the United Alkali Company in connection with their Scotch works, which have gone the round of the lay press, the same organ has this week treated its readers to another little tit-bit. On the assumption that the United Alkali Company has decided to close the Scotch works altogether, it is stated that a proposal is on foot in Glasgow to form a new company, with a capital of £100,000., to manufacture bleaching powder, caustic soda, and soda crystals. Doubtless the paragraph has been based upon what is at present merely a rumour, but we should think it was of a more chimerical nature than even the majority of rumours.

After the way the hopelessness of the situation of all Le Blanc Works was laid bare in our up-to-date financial organ, it would be nothing short of wanton foolhardiness for any concern to contemplate embarking on the manufacture of the above-named products by what our authority deems a doomed process. Should such a step be taken in the face of the warnings to which our contemporary has given utterance, we should be driven to conclude that either the canny Scot was beginning to lose his cunning, or else that the evil prognostications so freely indulged in were not warrantable, and did not find currency with those who know something about the chemical world. That all the terrible things foretold by the impetuous organ in question would not hold water, we have already shown, but if any reliance whatever is to be placed upon their latest information the previous diatribe becomes flimsier than ever. Touching the possibilities of there being any serious import in the rumour which is current, we must leave our readers to judge for themselves. In so doing, they should bear in mind the fact that the United Alkali Company have found it desirable to curtail their production, not only in the North, but also in Lancashire. Further, nearly all the large Le Blanc makers of alkali are under the control of the Company as regards output. Being thus safeguarded against anything like combined competition, the chances of isolated competitors are tolerably apparent. Our financial friend seems to have overlooked this point.

COAL IN CHILI.

Just now an agitation is being made in Chili in favour of coal-boring operations being carried on in that country with a view to establishing the coal industry and developing the resources of the country.

There are at present only three seams being worked, the chief of which is but a yard and a half thick at the most. The Government are the principal users so far, and with the growth of the nitrate railways, which is going on so rapidly and surely, it would be a great acquisition if the coal in the country could be utilised, instead of having to depend more and more each year upon foreign supplies.

Unfortunately it is not safe to look for very favourable results from any borings and explorations that may be made, as the geological conformation of the country is not promising, and the borings which have been made have not been encouraging.

Moreover, the seams which are actually worked yield a fair amount of lignite, but it is deficient in gas and does not coke. Operations in this direction, which may be made in Chili, should therefore be well considered before too much importance is attached to any results which may be anticipated.

THE PREVENTION OF CEMENT ADULTERATION.

ANENT the steps which are being taken in this country to suppress the adulteration of Portland cement, of which mention is made in another column, it is instructive to note what the Germans have done in the same direction. According to the "Chamber of Commerce Journal," early in the year 1880, when adulteration threatened to become very prevalent, the Union of German Cement Manufacturers found itself compelled to set its face in the strongest manner possible against the admixture of foreign materials with cement, both in order to protect the good name of German Portland cement, and at the same time to protect the building trade from disadvantage and danger. There have not been wanting, on the other hand, attempts to defend the admixture of foreign materials with the cement. It has been asserted that the strength of Portland cement was more than sufficient for many purposes, and that it was in the interest of the building trade to produce for them a cement which should be cheaper, and yet sufficiently strong for their requirements. It was even argued that the admixtures employed were an improvement to the cement, and in support of this assertion the defenders of the system pointed to the investigations of Professor Tetmeyer and Dr. Michaelis, who by certain admixtures obtained an increase in the strength of the cement.

With regard to the first point (cheapness), the Union insisted that it must be left to the consumer, if he wished to cheapen cement, to make the desired admixtures himself. If either the manufacturer or the dealer were permitted to do this, the door would be opened wide to fraud, and the confidence of the public in Portland cement would be shattered, for the consumer would not be in a position to know or to test either the degree of the adulteration or the characteristics of the added material.

With regard to the second point (*i.e.*, the alleged improvement), it was certainly known that by the addition of ultramarine, precipitated silicic acid, preparations of potter's clay, and such like, the strength of Portland cement could be increased, but it is still doubtful whether the other valuable qualities of Portland cement do not suffer, and, moreover, these admixtures are excluded from use, if only by reason of their high price. If the defenders of the system point to the admixtures of "compositions" made by Michaelis and Tetmeyer in their laboratory experiments, and the constitution of which was not made public, there is no evidence that the materials used in the works where this adulteration is practised are identical with the materials used by these gentlemen.

It is quite certain that the quality of cement is not in the least improved by the granulated blast furnace slag, which is used for the production of Pozzuolan cement, and which hardens well when mixed with lime. On the other hand, the ordinary ground or disintegrated slag (and it goes without saying that the same remark applies to ground limestone) deteriorates the quality of the cement, and is to be regarded simply as "ballast" in cement.

It has been found that adulteration is chiefly practised with these two materials, and it is agreed that the mixed cements hitherto put upon the market were all of little value, and they have been so considered to this day.

For all these reasons, the Union of German Cement Makers, which since 1888 has borne the title of the "Union of German Portland Cement Manufacturers," has continuously exerted itself to root out, as far as possible, this system of adulteration.

With this view the Union has drawn up certain information as to what may legitimately be added to cement and what may not. The following were the conclusions arrived at:—

Admixture of Gypsum.—The addition of unburnt gypsum, made at the time of grinding, has for its advantageous object the retarding of the setting of such Portland cements as are by their nature quick-setting, and thereby rendering them more fit for use. The action of the gypsum is probably owing to the fact that when the cement is mixed with water into mortar, the gypsum is first dissolved, and then precipitated in extremely fine particles on the grains of the cement, in exactly the same way as it is recommended for lime by F. Schott. (See Dingler's Journal, 205, 52, and 209, 30.) If the particles of cement are enveloped in the thinnest possible film of gypsum, the chemical incorporation of the water is notably delayed. In consequence of this the cement becomes slower setting, and by this means (possibly also by the simultaneous occurrence of some chemical action) cement, mixed with a little gypsum, gives a higher degree of strength than the unmixed quick-setting cement. Inasmuch as the addition of from one-half to two per cent. of gypsum is sufficient for the attainment of this object; and as, moreover, the addition of a larger percentage would cause the cement to "blow," there can be no possible ground for asserting that the admixture of gypsum is made with a fraudulent intention; nay, more, such an addition, within the prescribed limits, must be regarded as an improvement. In consequence of this the united declaration of the German Portland cement manufacturers specially permits additions, not exceeding two per cent., if made with the object of regulating the time of setting.

Fraudulent Admixtures.—Of materials, which may from time to time be mixed with Portland cement, with the intention of adding to the profits, and without open acknowledgment of such admixture, it is evident that only those can be employed which are cheap, and which resemble Portland cement both in weight and colour. Chief amongst such materials are slag, principally blast furnace slag, grey limestone, slate, hydraulic lime, black or grey limestone, and grass. The most popular adulterant is slag, because, when pulverised, it is very similar in appearance to Portland cement, and is therefore less easily detected, even when added in large proportions.

All the foregoing admixtures make the cement inferior, not only in respect of strength, but also in respect of those other valuable qualities (or characteristics) of Portland cement, such as resistance to frost, durability, cohesiveness, &c., as has been proved by the most exhaustive researches.

DEPRESSION IN THE BEET SUGAR INDUSTRY.

THE severe decline in the price of beet sugar which has been witnessed for some months past is severely testing the financial position of the Austrian sugar-refining industry, and it has recently been alleged that the two leading Austrian banking institutions, which are financing the greater number of these refineries and attending to the sale of their production, would have to be prepared to face severe losses. It is stated that no fears need be entertained on that score, and that, on the contrary, all the refineries (with, perhaps, one or two exceptions) have been working for several years past with such success that they are now fully able to bear the strain on their finances imposed by the present bad season. It is not denied that the losses will be severe. The refineries mostly contracted for their supply of beets during the spring and early summer at prices from 1fl. 10kr. up to 1fl. 50kr. per 100 kilos, and they must lose from 1fl. to 2fl. on each metric cent. of raw sugar produced; but it is calculated that even at extreme figures the largest establishments will not lose more than 100,000fl. each, and that this they can easily meet out of their reserve profits. The Austrian Credit Anstalt represents two leading refineries and six well-situated raw sugar manufactories, and the Lnderbank three refineries and ten raw sugar manufactories.—*Times*.

PREPARING PURE SODIUM CARBONATE.—Pure Na_2CO_3 for the preparation of standard carbonate for volumetric work may be obtained by dissolving as much bicarbonate of sodium as is possible in 250 c.c. of water at 80°C freeing from insoluble impurities by filtration. On cooling down to a temperature of from 10° to 15° in a stream of water a double salt which has the composition of $\text{Na}_2\text{CO}_3 + \text{NaHCO}_3 + 2\text{H}_2\text{O}$ crystallizes out. Most of the soluble impurities remain in the mother liquor, which is sucked off, and the salt is further purified by repeated washing with small quantities of cold water. When heated in a platinum basin at a temperature just below perceptible redness, the residue is, according to Reinitzer, perfectly pure Na_2CO_3 .

THE PHOSPHATES OF SOUTH CAROLINA.

IN the course of a paper on this subject read before the Franklin Institute, Mr. Wyatt says that with the deposits of South Carolina we find that the geological formation of the phosphate belt is made up of quarternary sands and clays overlying beds of eocene marls with the phosphate nodules distributed over their surface or mixed up indiscriminately with them. The total area covered by the belt is seventy miles long by thirty miles broad; the richest and most accessible portion being in the immediate neighbourhood of Charleston.

Whether the deposit is, or is not, continuous over the whole of this zone, is open to question, but it certainly varies considerably in depth and thickness. In many places it is three feet thick and crops out at the surface, whereas in others it dwindles down to a few inches, or is found at depths varying from three feet to twenty feet. These two conditions, thickness of deposit and depth of strata, taken together with the richness of the material in phosphoric acid, are the chief points for consideration in the economic working of both the river and the land beds on an industrial scale.

The two kinds of deposits, the "river" and the "land," are both of practically the same chemical description, and both have been worked extensively and are of great commercial value; that from the river being raised and washed from all adhering impurities in one and the same operation by means of machinery.

The rock and nodules occur in very irregular masses of extremely hard conglomerate of variegated colour, weighing from less than half an ounce to more than a ton. The mean specific gravity of the material is 2.40, and it is bored in all directions by very small holes. These holes are the work of innumerable crustacea, and are now filled with sands and clays of the overlying strata. Sometimes the rock is quite smooth or even glazed, as if worn by water; at others, it is rough and jagged.

Interspersed between the nodules and lumps of conglomerate are the fossilized remains of various species of fish and some animals chiefly belonging to the Eocene, Pliocene or post Pliocene ages.

CHEMICAL COMPOSITION OF SOUTH CAROLINA PHOSPHATE.

	River Rock.	Land Rock.
Loss on ignition.....	7.01	8.00
Phosphate of lime.....	59.02	58.63
Carbonate of lime.....	5.30	8.68
Carbonate of magnesia.....	0.76	0.84
Fluoride of lime.....	5.01	4.05
Oxides of iron and alumina ..	2.93	5.30
Sandy siliceous matters.....	15.24	13.70
Loss and undetermined.....	.73	.80

Before the South Carolina phosphate can be made available for industrial purposes, it passes through three distinct and successive operations, namely:—

- (1) Dredging or mining.
- (2) Washing to free it from sand or other impurities.
- (3) Kilning to free it from moisture.

The dredging machines are used to most advantage in about twelve feet of water, and are specially constructed for the work with claws and scoops capable of raising immense weights. An ordinary day's work under favourable circumstances lifts about 100 tons of rock. The rock having been gathered into dippers or buckets, propelled by steam, is emptied on a grating or conical washer, and freed from mud by means of heavy streams of water. Marl, sandstone or oyster shells are then easily detected and thrown aside. Thus partially cleaned, it passes on to a crusher and then to a second washer, where the remaining impurities are separated. The washing apparatus consists of either upright and cauldron-shaped or shaft washers, which discharge the washed rock upon lighters for transportation to the drying sheds, where it is heaped upon and around a system of perforated iron pipes. The hot air blown through these pipes escapes through the perforations, and thoroughly dries the rock in a few days.

The dried rock is loaded directly into the holds of the vessels by dumping-cars, which are loaded in the drying-sheds from large iron buckets hoisted by steam-power.

The "land" mining, consists in first laying off long trenches and removing the overburden of sands and clays. The phosphate stratum is then removed by picks and shovels and thrown up on the bank, whence it is taken by barrows or cars to be crushed, washed and dried.

The "single-screw" washer is the one most generally used, and it consists of four half-circular boxes resting in a frame on an incline of 18 inches, and 25 feet in length. These boxes are cased with iron. In each box is an octagonal shaft, also cased with iron, and having on each face, teeth or blades set at such an angle to the shaft as to form a spiral screw, with a twist of one foot in six feet. Over each box or washer are strong cylindrical crushers or breakers armed with steel teeth, acting against an iron plate and set about four inches from it.

The nodules of rock are dumped through these breakers and broken to a uniform size of four-inch cubes. The rock is then agitated by these bladed shafts, which make about 18 revolutions per minute, and are submerged in water contained in the tub or box, and is forced forward and up the incline against a heavy stream of water entering at the upper end of the washer-box, and empties itself through an overflow at the end. The abrasion of one piece of rock against another in its passage through the box, rids it completely of all foreign matter, such as mud, etc.

From this overflow it falls upon screens, set one above the other, the first screen having about half-inch meshes, and the lower screen about quarter-inch meshes. From this lower screen the fine rock falls upon an oscillating screen still lower, which serves to rinse it very thoroughly, as a flow of water passes continuously over all the screens.

Finally, the phosphate falls upon an elevated platform, and is thence taken to the sheds or storehouses. The water used is drawn directly from the river and forced up into large troughs by means of heavy pumps, both steam and centrifugal. The washers are considerably elevated for the purpose of getting rid of the *débris*, which is carried off by means of large troughs. The loss by abrasion and clay adhering to the rock varies from fifty to sixty per cent. The capacity of each washer is from forty to fifty tons of clean rock in ten hours.

TIPS FOR TRADERS.

BRITISH firms giving credit in Morocco should be cautious how they accept references. Moreover it should always be borne in mind that English officials in Morocco have no control over either the persons or property of Moorish debtors.

ORCHELLA and oil seeds are being exported in smaller quantities from Mozambique. All the exports have been to European ports.

JAFFA, having become the seaboard terminus of the Jaff-Jerusalem Railway, is now contemplating the construction of a port, with a tramway to the railway station. The Turkish Minister of Public Works has the matter in hand.

SUGAR REFINERIES are on the increase in India. Three are in course of construction—one in Bengal, another in the Bombay Presidency, and the third at Cawnpore. The last is the most important undertaking.

ASBESTOS mining has not been in an over flourishing state in Canada for some time past. There are, however, legitimate signs of improvement in the crude asbestos market, which are very welcome after the dulness which has prevailed.

TARIFF CHANGES.

There are from time to time many alterations in the Customs' regulations abroad, which it is well for those trading in chemicals, oils, paints, and raw materials to be acquainted with. The following are some of the most recent changes of interest to the foregoing:—

SOAPS of the hygienic and cosmetic class will be considered as scented soaps when imported into Russia, and will have duty levied accordingly.

PETROLEUM, when imported into Netherland colonies in the East Indies will in future be subject to a duty of 25 cents. per hectolitre, instead of being rated *ad valorem* as formerly.

MINERAL OIL imported into Italy in cases lined with tinned iron will be taxed with deduction of the legal tare of 4 per cent. of the weight of the package without deduction of the weight of the case.

OXYGEN imported into the same country is now subject to a duty of 4 lire per quintal.

POSTAL CHANGES.

Parcels are now accepted at any post office for transmission to Dutch Guiana and the Dutch West Indies.

The places at which parcels are delivered are, in Dutch Guiana, Paramaribo and Nieuw-Nickerie, and in the West Indies, Willemstad (Curacao), Philipsburg (St. Martin), and St. Eustatius.

The postage will be: For a parcel not exceeding 3lbs. in weight, 3s. 6d.; exceeding 3lbs. and not exceeding 7lbs., 4s.; exceeding 7lbs. and not exceeding 11lbs., 4s. 6d.

The parcels should be posted in time for despatch from London on the morning of Wednesday, the 5th December, and every third Wednesday thereafter.

No parcel may exceed 11lbs. in weight, 2ft. in length, or 4ft. in length and girth combined.

Our Book Shelf.

PHOTOGRAPHIC PRIMERS. By C. C. Veevers. Leeds, 1894. 2d. each.

These primers comprise a series of five very useful little handbooks or beginners in photography.

The first of the series is indeed solely devoted to "Beginners' Errors," and is full of useful hints on photography, developing and printing, especially the two latter subjects.

The second primer consists of a description of the various photographic lenses and their construction. The descriptions are simple, and so made that they afford actual help in the selection of a lens, since they explain the object which it is desired to obtain by using optical combinations in the construction of compound lenses. It also gives a good explanation of the use of diaphragms and the principle upon which they work.

Number Three in this series is devoted to "Printing Dodges," and the "faking" of negatives. It deals with most of the troubles amateurs have to contend with, and does better than explain how to remedy them by describing how they arise. The much abused art of vignetting is also described with considerable care and precision.

The fourth and fifth primers do not call for special comment, though they are quite up to the standard of their predecessors. Number Four treats of enlarging on bromide paper, and gives some useful hints upon the use of artificial light for this purpose. Number Five is on "Developers and Development," and is by Dr. Thresh, though published in the series under review.

These Primers will be found very useful to the tyro, and carry him a long way before he need consult a text book of photography.

THE MANIFOLD USES OF SALT. Published by the Salt Union, Limited.

This little pamphlet sets forth briefly the historical and modern uses of salt, many of which are interesting. Prominence, however, is given to the household uses of this familiar article. These are many, such as its use for cleansing and removing stains, and as a preservative. In addition, the curative and medicinal properties of salt are recorded, such as its use for brine baths and similar uses. The pamphlet altogether will be found both amusing and instructive, and can be had, we believe, by mere application to the Salt Union, Limited.

THE ELEMENTARY NATURE OF CHLORINE. Being reprints of papers by Sir Humphrey Davy, in 1809-1818. Edinburgh. W. F. Clay. 1894. 2s.

This, the ninth of the Alembic Club series of reprints, is full of interest, and affords much instructive reading. As the title implies, it is devoted to selections from the papers of Sir Humphrey Davy, in which he contributed to the great chlorine controversy. This controversy arose about the composition of chlorine gas (or oxymuriatic acid, as it was then called) as to whether it was a compound or elementary gas. It appears that Gay-Lussac and Thenard were the first to suggest the possibility of its being a simple gas. Still they never went so far as to adduce experiments in support of the suggestion. Scheele was the first to bring experimental evidence against Berthollet's theory. Though Sir H. Davy did much to support Scheele's elementary theory, it was his brother, Dr. John Davy, who was such an ardent defender of this theory. It is somewhat singular that whilst Scheele had the correct notions about the composition of chlorine, he was quite wrong about the theory of its bleaching powers, whilst Berthollet was correct on this point, attributing the action to oxygen. It is possible, however, that the latter was assisted in arriving at this theory by his erroneous conception of chlorine, and thinking the oxygen was liberated from the chlorine gas and not by it.

The origin of the name chlorine, in place of oxymuriatic acid, is also quaintly amusing. As they could not agree about the composition of the gas, it was decided to call it chlorine, from its green colour. This pleased the Scheelites, and committed the followers of Berthollet to nothing, as the name would still hold good even if it should be subsequently found that the gas did contain oxygen. We know now, of course, who was right, but the happy compromise was still none the less ingenious.

CATALOGUE OF CHAIN BELTS. Ewart & Co., Derby, 1894.

This is a new catalogue of Drive Chain Belts, such as Ewart's, Dodge's, Ley's, and Gray's, and will be found very handy for reference.

It does not merely show certain stock arrangements, but gives drawings of all the different forms of links made. Most of the drawings are full size, or else the reduction is stated. In addition, the following

particulars about each style of link is given:—The pitch, working strain in malleable and wrought iron, the attachments, and whether kept in stock or not. Particulars of accessories, such as elevator buckets, scrapers, hand-hoists, etc., are also given. Where trouble with belting due to moisture and varying temperatures is experienced, it may prove helpful to consult this catalogue.

EXPORTS OF ALKALI AND BLEACH.

THE following figures, which are taken from the official foreign and colonial statistics of the United Kingdom, give the amount and value of alkali and bleaching materials shipped to the undermentioned countries during the month of October, 1894, as compared with the same month of 1893:—

ALKALI.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
Russia	31,307	26,780	12,971	8,954
Sweden and Norway	8,494	19,166	1,866	3,883
Germany	19,376	18,674	5,353	5,978
Holland	6,965	11,903	1,330	2,429
France	1,028	5,795	368	2,403
Spain and Canaries	5,590	36,517	2,452	13,720
Italy	15,462	25,200	4,801	9,517
United States	198,348	331,911	55,653	73,072
Australasia	7,738	17,561	3,117	6,376
British North America ..	30,604	45,667	8,441	11,844
Other countries	71,710	106,296	22,957	33,014
Total	396,622	645,470	119,309	171,190

BLEACHING POWDER, ETC.

Port.	1893.	1894.	1893.	1894.
	Cwts.	Cwts.	£	£
United States	45,471	82,337	18,888	31,592
Other countries	51,419	63,316	21,029	24,609
Total	96,890	145,653	39,917	56,201

TESTING WINES.

IN the course of a paper on the Characteristics of the Wines of California, Mr. W. H. Krug gives the following outline of a convenient method of analysing wines.

Specific Gravity.—The specific gravity was taken on an analytical balance by means of a Westphal bob, whose displacement had been previously determined.

Alcohol.—One hundred cc. of the wine were placed in a flask with fifty cc. of water and a little precipitated calcium carbonate, the flask attached to an upright condenser and the contents of the flask subjected to distillation. To prevent the volatilization of the alcohol, the condenser tube should be made to extend almost to the bottom of the receiver. A 100 cc. flask was used for a receiver, and when 100 cc. of the distillate had passed over, the operation was interrupted and the flask removed, shaken, and the specific gravity of the distillate determined in the same manner as given under specific gravity. The percentage of alcohol by volume was determined from the specific gravity by table II., on page 213, in bulletin 38, division of chemistry, U. S. Department of Agriculture, and the percentage of alcohol by weight was determined by multiplying the percentage of alcohol by volume, by the specific gravity of absolute alcohol, and dividing that product by the specific gravity of the wine.

Extract.—The direct method was used. In the case of dry wines, fifty cc. were weighed and evaporated on the water-bath to a sirupy consistence in a platinum dish about eighty-five mm. in diameter. The residue was dried two and one-half hours in a drying oven at 100°. Of the sweet wines only ten cc. were weighed and diluted with distilled water before being evaporated.

Total Acidity (expressed as tartaric acid).—Ten cc. of the wine were carefully measured into a beaker, diluted with distilled water, and a few drops of neutral litmus solution added. Decinormal sodium hydroxide solution was used in the titration, and the neutral point was determined by placing a drop of the liquid on delicate litmus paper. This was found to work equally well on white and red wines. A standard solution of calcium hydroxide has been recommended for red wines, the end reaction being the appearance of a flocculent precipitate. I found it much more difficult, however, to observe this than to note the neutral point with sensitive litmus paper. Before this point is reached the natural colouring matter of the wine will change, indicating

the approach of neutrality, so that the operator can work without difficulty to within a tenth of cubic centimeter.

Glycerol.—A. In dry wines. One hundred cc. of wine were evaporated down to about ten cc. on the water-bath with about five grams of fine sand. Milk of lime was then added until the reaction was strongly alkaline, and the evaporation carried almost to dryness. The residue was gently heated on the water-bath with about fifty cc. of ninety-six per cent. alcohol, and mixed with a glass pestle until a homogeneous paste was obtained. It was allowed to settle, and the supernatant liquid filtered through a folded filter. The residue was repeatedly extracted in this manner until about 150 cc. of filtrate were obtained. To this a few pieces of glass or sand were added to prevent bumping, and the alcohol carefully distilled off over a small flame until about fifteen cc. remained. The evaporation was then continued on the steam-bath until the residue became sirupy. After cooling, it was dissolved in ten cc. of absolute alcohol and fifteen cc. anhydrous ether added, the flask well-stoppered and shaken. When the precipitate had collected on the sides of the flask, the clear liquid was decanted into a tared glass-stoppered weighing bottle capable of holding about fifty cc., the precipitate washed once or twice with a few cc. of a mixture of two parts of alcohol and three of ether, the washings being transferred to the weighing bottle. The ether-alcohol removed on the water-bath, the residue dried one hour in a water-oven and weighed. When the precipitate, caused by the addition of ether, remains flocculent, it is separated by filtering through a small filter, which is then washed repeatedly with a few cc. of the ether-alcohol mixture.

B. In sweet wines. One hundred cc. of the wine are evaporated to a thick syrup on the water-bath with about ten grams of sand. The residue is repeatedly extracted with absolute alcohol until from 100 to 150 cc. have been used (the amount being varied with the amount of sugar present). The extracts are united in a large flask and one and one-half parts ether added for every part of alcohol used. The flask is stoppered and allowed to stand until the liquid is clear. Almost all the sugar is present in the sirupy precipitate while the glycerol remains in solution. The clear liquid is decanted into a flask, the residue washed repeatedly with small quantities of the ether-alcohol mixture and the united liquids distilled. The evaporation is completed on the water-bath, the residue washed into a porcelain dish by means of a little water, and treated as in A.

Polarisation.—The wines were all polarized in a Schmidt and Haensch instrument with a 200 mm. tube. In the case of the dry wines, fifty cc. were evaporated sufficiently to permit the addition of three cc. of lead subacetate solution and three cc. of a saturated sodium carbonate solution to the white, and respectively six cc. of each solution to the red wines. The precipitate was filtered off and the filtrate polarized. In the case of the sweet wines twenty-five cc. were taken and made up to fifty cc.

The sweet wines were both inverted and fermented. For inversion twenty-five cc. were placed in a 50 to 55 cc. flask, two and one-half cc. strong hydrochloric acid added. The flask was heated in a water-bath to 68° C., consuming about ten minutes in heating. It was removed, cooled quickly to room temperature, filtered, and polarized. For fermentation, fifty cc. were placed in a wide-mouthed flask, a quarter of a cake of Fleischmann's compressed yeast and a sufficient amount of a potassium fluorid solution added, so that ten mgms. of this salt were present. The flask was allowed to stand four days at room temperature, when it was found that fermentation was complete. The liquid was then washed into a 100 cc. flask, four cc. of lead subacetate solution, two cc. of mercuric nitrate solution (U.S. Department of Agriculture, Division of Chemistry, Bulletin 38, p. 198), and a varying amount of thick alumina cream added. It was then made up to 100 cc. with water, filtered, and polarized. The mercuric nitrate solution was added to destroy any bacteria which might impair the transparency of the filtrate when the latter, by any chance, stood for a length of time before being polarized.

If, after inversion, the wine polarizes more strongly to the left, unfermented cane sugar is present.

If, after fermentation, it polarizes to the right, the unfermentable constituents of commercial glucose are probably present.

Reducing Sugar.—This was determined by Allihn's gravimetric method and was calculated as dextrose.

Reagents.—1. 34.639 grams of crystalline copper sulphate dissolved in water and diluted to 500 cc.

2. One hundred and seventy-five grams of Rochelle salt.

One hundred and twenty-five grams of potassium hydroxide. Dissolved in water and diluted to 500 cc.

In white wines. Fifty cc. were neutralized with sodium carbonate, the alcohol removed by heating on the steam-bath, made up to the original volume with water, and filtered through a dry filter. When necessary, this solution was diluted with water to bring the reducing sugar down to one per cent. or less.

Thirty cc. of the copper solution, thirty cc. of the seignette solution, and sixty cc. of water, were placed in a beaker and heated to boiling.

Twenty-five cc. of the sugar solution were then added and the whole boiled two minutes. The cuprous oxide was immediately filtered off and washed with hot water. It was then dissolved in dilute nitric acid, reduced to copper by the usual electrolytic method, and weighed in that form.

The red wines were decolorized by filtering through bone-black, the first portion being rejected and the second portion treated precisely as the white wines.

Tannin and Colouring matter.—The Löwenthal method was used. **Reagents.**—Permanganate of potash solution: 1.333 grams of crystallized potassium permanganate in a litre of water.

Indigo solution: Six grams of sodium indigo sulphate and fifty cc. concentrated sulphuric acid per litre of water.

Decinormal oxalic acid solution.

Washed bone-black suspended in water so as to make a thin paste.

A. One hundred cc. of wine were dealcoholized by boiling, and the lost weight restored with water. Ten cc. of the dealcoholized wine are transferred to a large porcelain casserole, twenty cc. of the indigo solution and about 750 cc. of distilled water added, and the titration carried out with the permanganate solution, adding a cubic centimetre at a time until the liquid becomes green, when it is added drop by drop until the colour turns to golden-yellow. Result A.

B. Ten cc. of the dealcoholized wine are diluted with water, a few cc. of the bone-black added, the liquid well stirred with a glass rod and allowed to stand some time. The bone-black is then filtered off and washed repeatedly with water. The filtrate is diluted to about 750 cc. and titrated as in A after adding the indigo solution. Result B.

Result A—Result B=cubic centimetres required by the tannin and colouring matter. This is stated in terms of oxalic acid.

Ash.—The residue from the extract determinations was carefully incinerated and weighed. In the sweet wines, the ash was determined by charring the extract and exhausting with hot water. The insoluble residue, consisting mostly of carbon, was collected on a filter, washed, dried, and burnt separately, the residue from the water extract was added to this and the whole heated to low redness until white.

Albuminoids.—The Kjeldahl method was used, the wine being previously evaporated to dryness in the digestion flasks. The amount used varied with the wines, it being necessary to use as little as ten cc. of some of the sweet wines on account of the tendency to foam when digested with sulphuric acid.

Sulphuric Acid and Chlorine in the Ash.—The ash was digested with hot water and a few drops of nitric acid and filtered into a fifty cc. flask. The residue was washed with hot water until the flask was full to the mark. It was cooled, made up, and the sulphuric acid estimated in an aliquot portion in the usual manner. In another portion the chlorine was determined volumetrically with N=200 silver nitrate solution. They were respectively converted to grams potassium sulphate and sodium chloride in 100 cc. of wine.

Insoluble Residue in Ash.—The filter and residue were ignited in a weighed platinum crucible and weighed.

Sulphurous Acid.—In the determination of sulphurous acid 100 cc. of the wine were diluted in a distilling flask with fifty cc. of water, acidulated with 5 cc. of dilute sulphuric acid (H_2SO_4 one part, H_2O three parts). The distillation was carried on in an atmosphere of carbon dioxide and the distillate received in a flask containing a measured quantity of decinormal iodine solution. The condenser tube should extend well below the surface of the iodine solution, and in case a current of carbon dioxide be passed through the apparatus, the receiving flask should be closed with a mercury valve or attached to a U tube containing a portion of the iodine solution. In the progress of the work it was found more convenient to expel the atmosphere by the addition of a small quantity of sodium carbonate, and in this case the guard-tube was found to be unnecessary. After about 100 cc. have distilled over, the excess of iodine is determined with deci-normal sodium thiosulphate solution.

Salicylic Acid.—The following method was worked out by Mr. W. D. Bigelow who had charge of this branch of the investigation:

Seventy-five cc. of the wine are placed in a separatory funnel, acidified with five cc. of dilute sulphuric acid (H_2SO_4 one part, H_2O three parts) and extracted with a mixture of eight parts of sulphuric ether and one part of petroleum ether. The ether is washed once with water and then thoroughly shaken with about twenty-five cc. of water and six to eight drops of a five-tenths per cent. solution of ferric chloride. The aqueous layer contains most of the colouring matter in combination with the iron and is discarded. The ether is then washed with water, transferred to a porcelain dish, evaporated to dryness, and the residue heated to the full temperature of the steam-bath for a few minutes. When the dish has become cool from four to five cc. of water are added, the insoluble matter filtered off after a few minutes, and the filtrates tested for salicylic acid by the addition of three to four drops of a five-tenths per cent. solution of ferric chloride. By this method an excellent clarification may be obtained with white wines and with most red wines. Sometimes, however, with the latter, a second extraction is necessary.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

THE MANUFACTURE OF CHEMICAL SPECIALITIES.

(To the Editor of the Chemical Trade Journal.)

SIR,—Can you or any of your readers advise me, through the *Chemical Trade Journal* how to obtain the following information:—

I am an analytical chemist and have a small works suited for manufacturing chemicals. The works are situated within 5,000 yards of Great Western Goods Railway Station. It has a good steam boiler and plenty of covered room, and an abundant supply of good water. I can obtain steam coal very cheap and labour is also cheap.

I want to manufacture a readily saleable chemical that will bring me in a fair income for capital expended. The works are not near any river or sea.—I am etc.,

Gloucestershire, Nov. 23, 1894.

ENQUIRER.

ANSWERS TO CORRESPONDENTS.

F. H.—(1.) We have all volumes bound with the exception of Volume II., of which we might be able to secure a copy, though it is very scarce. We have most odd copies from Volume III., though some are out of print. If you would specify the numbers you require we could give you a definite answer as to what we have, and what not. (2.) It actually exists as the hydroxide.

A. J. F.—We are obliged for the explanation, but hope it will not occur again.

F. J. P. AND CO.—We have no further information at present.

CHEMIST.—There are several German firms who make "Saurefeste Email."

F. B. AND W.—We are obliged, and await your further communications.

H. V.—They seem very good, and we hope to make something good from them.

O. B.—It is the wrong one. Please correct as soon as possible.

THE HARDENING OF MORTAR.

BY MR. J. A. MCPHERSON.

IT is common belief among builders that it is better practice to mix lime mortar and let it lie in a heap some days previous to use, rather than to employ it directly after preparation. In order to test this point, samples of mortar were taken, on successive days, from two separate heaps of large size; briquettes were made therefrom, and, after an interval of some weeks, were broken for estimation of tensile strength with the following results:—

	Days in heap after mixing.	Days exposed to air as a briquette.	Average breaking weight in pounds per square inch.
Mortar No. 1.....	3	50	34.6
" ".....	4	49	38.6
" ".....	6	48	38.1
" ".....	7	46	39.3
Mortar No. 2.....	4	48	36.0
" ".....	5	47	38.0
" ".....	6	46	41.2
" ".....	7	45	41.5

As concerning the formation of calcium silicate through the action of the lime upon the sand, the amount of such formation was found exceedingly small, even after great intervals of time.

After extended experiments with mortar taken from the old Van Rensselaer mansion at Albany, built about 1760, and with mortar from a very ancient tower in the valley of the Lahn, the quantity of calcium silicate found therein was 0.34 per cent. of the total weight of the mortar, an amount altogether too small to be considered as a factor in the hardening of the mortar.

THE USE OF SUGAR IN TEMPERING MORTAR.

The influence of tempering hydraulic mortar with water containing sugar (one-half pound of sugar to one gallon of water) is shown by the following averages, the mortar used having a tensile strength when tempered with pure water of sixty-three pounds per square inch.

Average tensile strength of sugared briquettes exposed to water during thirty-eight days was 62.75 pounds.

Similar briquettes exposed to air during the same period was 65.4 pounds.

There is, therefore, a gain of three and eight-tenths per cent. over the water-tempered mortar in cases where the mortar is used in air, but no advantage when the mortar is intended for sub-aqueous work.

THE ACTION OF BULLOCKS' BLOOD.

In South America there has been occasional use of bullocks' blood for tempering hydraulic mortar. In view of this, a number of experi-

ments were made with the same mortar which was used in the experiments, but the tempering was made with bullocks' blood with one-third its volume of water. The resulting briquettes set somewhat more quickly, and were very hard and firm. Their average strength was:—

After exposure to water during thirty-seven days, 68.3 pounds
" " air " " " 69.8 "

Thus showing a gain over the water-tempering of ten per cent. for briquettes set in air.

SCHEMES FOR THE PREVENTION OF RIVER POLLUTION.

WILMSLOW.

THE Wilmslow Local Board has now received permission from the Local Government Board to borrow the whole of the money necessary for the northern sewerage scheme. The scheme, which is expected to cost £10,000, will embrace outfall works on land between Twinney's Bridge, which lies midway between Styal and Wilmslow, this plot having recently been secured from the Chorlton Local Board authorities. The Chorlton Guardians, who had only just purchased the estate of which this land forms a part, had accepted the offer of £120 an acre from the Wilmslow Local Board and had agreed to compensate the tenant of the farm adjoining. The Wilmslow authorities have been compelled to move in regard to their northern sewerage scheme in consequence of the action of the Irwell and Mersey Joint Committee respecting the pollution of the river Bollin. The Board have also expended several thousands in connection with an elaborate sewerage scheme on the southern side, and they are just now carrying out important alterations in the Oak Lane district of Fulshaw.

SWINTON.

A special meeting of the Swinton and Pendlebury Local Board was held on Monday, Mr. Joshua Lysons in the chair. It was stated in consequence of complaints having been received from the Mersey and Irwell Joint Committee respecting the effluent turned out from Swinton sewerage works, the Board's surveyor had been directed to prepare plans and estimates for a new sewerage scheme, and the Mersey and Irwell Joint Committee had allowed the Board until last Wednesday, to lay the new scheme before them.—Mr. Keirby, in moving the adoption of the scheme, said it would involve an expenditure of £5,000. They had delayed the matter as long as they could without being forced into litigation.—Mr. Gerrard said the expenditure would amount to a three-halfpenny rate for the next 30 years.—Mr. considered the district was the lowest rated for miles round Manchester, though there was no other that was developing so quickly as Swinton and Pendlebury. A half-crown rate could not be considered unreasonable for such a district.—A deputation was appointed to lay the scheme before the Mersey and Irwell Joint Committee on Wednesday last.

PREVENTING THE ADULTERATION OF CEMENT.—At a meeting of the cement trade, held at the London Chamber of Commerce, on Tuesday last week, it was resolved—"That a committee be appointed, with power to engage experts to investigate into the question of admixture of Kentish Rag Stone, other stone or other material with Portland cement, so far as carried on at home and on the Continent, and to report and advise thereon." Representatives of eleven firms were appointed upon the committee. The formation of a Cement Manufacturers' Association, with the object of stopping adulteration of cement as well on the way towards completion.

DESTRUCTIVE FIRE AT CHESTER.—About a quarter-past six o'clock, Monday morning, a Police-constable discovered a fire raging in Bowers Brothers' oil and drug stores, situated near the top of Werburgh Street. The building in which the fire was chiefly confined was a three-story building, with various oils, including petroleum, benzine and naphtha, methylated spirits, together with large quantities of drugs and inflammable goods. After the fire had been burning for a short time, it presented the appearance of a great furnace, and the brigade directed their attention to prevent the flames spreading to the adjoining buildings. They were eventually successful in cutting off the fire from the adjacent buildings and warehouses. The roof of the warehouse fell in, and the entire premises were completely gutted, whilst the offices of F. B. Mason, solicitor, and Mr. Speakman, law stationer, which were in the warehouse, were burnt out. Had the brigade not attacked the fire in the first instance from Eastgate-street, there is no doubt a serious conflagration would have ensued. A number of telegraph wires were destroyed by the fire. The origin of the fire is unknown. It is estimated that the damage will be between £3,000. and £4,000. The firemen experienced great difficulty in their work, owing to the fumes arising from some of the burning chemicals. Some of the men were nearly overpowered by the fumes.

Trade Notes.

A PETROLEUM FATALITY.—At Torquay on Monday night, Mary Ann Moore, wife of a fruiterer, fell downstairs with a lighted oil lamp. Her clothing became ignited, and she was burned to death.

THE SAN SEBASTIAN NITRATE CO. LIMITED.—The Directors of the San Sebastian Nitrate Company, Limited, have declared an interim dividend of 5s. per share on account of profit for the current year.

THE LIVERPOOL SCHOOL OF SCIENCE.—At the monthly meeting of the Library Committee on Thursday Mr. Wlink moved the following resolution:—"That, in the opinion of this committee, it is necessary to take immediate steps towards providing suitable accommodation for the Liverpool School of Science, Technology, and Art."

DUTCH Madder.—Messrs. Bunge and Co., of Rotterdam, report that the demand is good. The slight easing in prices has had something to do with the greater activity on the part of buyers, but inquiries are so plentiful that it does not appear probable that prices will decline much. Fine crop is quoted 32s. to 34s. per cwt. Fine Ombros, 22s. 6d. to 24s.; re-grounds, 14s. to 17s. 6d.

PARCELS TO PORTUGAL.—It is as well for persons in England sending parcels to Portugal by post to know that unless the words *pour être soumis à la douane* are written on the outside the receiver will be called upon to pay a heavy fine in addition to the ordinary duty. Abandonment of the article is not allowed, and in case of refusal to pay the fine this is enforced by legal proceedings. No plea of ignorance or of any other circumstance is allowed by the authorities.

SOCIETY OF CHEMICAL INDUSTRY: London Section.—The next meeting of the Section will be held as usual in the rooms of the Chemical Society, Burlington House, on Monday, December 3rd, at 8 p.m. The chair will be taken by Mr. B. E. R. Newlands. Papers will be read by Mr. E. W. Ruhn, on "The Sterilisation of Alimentary Liquids," and by Dr. Attfield, on "The Natural Sodium Sulphate Lakes of Wyoming." Specimens of India rubber, petroleum oil, varnish and soap, will be exhibited by Mr. T. Christy.

SOCIETY OF CHEMICAL INDUSTRY: Manchester Section.—The usual monthly meeting of this section will be held at the Victoria Hotel on December 7. Dr. C. O. Weber will read a paper on "India-rubber." A communication from Mr. P. S. Gilchrist on "Pipe Columns for Saving Chamber Space in the Manufacture of Sulphuric Acid" will also be read. Mr. W. Thomson, F.R.S.E., will show some new forms of chemical apparatus.

SOCIETY OF CHEMICAL INDUSTRY: Liverpool Section.—The next meeting of this section will be held on Wednesday, 5th inst., when a paper will be read by Mr. E. E. Watson on "The Calculation and Composition of Blast-Furnace Charges as applied to the Smelting of Lead and Silver Ores." Tea will be served in the Museum.

PERSONAL.—Mr. W. H. Scott, head of the firm of Messrs. Scott Brothers, Newcastle-on-Tyne, has just celebrated the completion of 50 years of commercial life, he having entered the office of Messrs. Christian Allhusen and Co., coal and chemical merchants, the Quay, Newcastle-on-Tyne, on November 16, 1844. In the half-century thus completed, the Tyne has witnessed great changes in the nature of its industries, some of which have become obsolete, while others have undergone considerable expansion. In those changes Messrs. Scott Brothers have participated. Originally they imported Sicilian sulphur, until it was driven out of the market by sulphur ore, and since then, for nearly 40 years, they have imported sulphur ore from the Tharsis mines, near Huelva—about 100,000 tons of pyrites passing through their books yearly as agents for the Tharsis Sulphur and Copper Company.

PURIFICATION OF WASTE WATER.—The necessity for purifying the waste waters from dyeworks and printworks is now recognised, and we are pleased to see that a large installation has been put down at the works of Messrs. Garside and Co., Buckton Vale. These works are among the largest in the country, having 38 printing machines, besides dyeing and bleaching as well, and the foul water running out from the works makes about three and four million gallons per week. The impurities consist of colouring matters, flour and starchy matters, china clay, muriatic acid, lime and soda ash, and several alkaline salts. This polluted water is now being treated by what is known as the Lockwood process, in which it is treated with copperas, and afterwards hot milk of lime, which brings down the objectionable matters, precipitating the sludge rapidly. The settling tanks are what is known as Lockwood's patent, being cylindrical, with conical bottoms, into which the sludge settles, and from which it can be forced out by the pressure of the water in the tanks as often as is deemed advisable. The water flows over the top of the tank into a circular channel formed in the wall of the tank, from whence it runs into the stream, clear enough to satisfy the most exacting authorities.

A FATAL LAMP ACCIDENT.—On Saturday last an elderly woman was extinguishing a petroleum lamp when it exploded and set her clothes in flames. She was severely burnt, and has since succumbed to her injuries, which caused her great suffering.

THE STANDARD FIRKIN OF SOAP.—In connection with representations recently made to the Chemical Committee of the Manchester Chamber of Commerce, as to the irregularities in the weight of the firkin of soft soap which has prevailed for some years (*C.T.J.* 384, p. 105), after full consideration the committee submitted the following resolution:—"That in the opinion of this committee the selling of soft soap by the firkin is, for various reasons, very unsatisfactory, and in order to avoid any dispute in regard to weight, soft soap should be sold like other kinds of soap, by net weight only."—The resolution was approved by the Board.

RECOVERING MANGANESE OXIDES.—According to a patented process, manganese sulphate obtained as a bye product in the chlorine industry is reconverted into the protoxide by either of the following processes. A solution of the sulphate is mixed with an equivalent quantity of a solution of sodium carbonate yielding manganese carbonate and sulphate of soda. The former is roasted to form the oxide. The alternative method consist in placing a solution of caustic soda in a Weldon's oxidiser, air being blown through while a concentrated solution of the sulphate of manganese is slowly run in. Manganese peroxide and sulphate of sodium are formed and separated by decantation or filtration.

THE SALT UNION V. THOMPSON.—The motion by the plaintiff company for the continuance of an injunction (*C. T. J.* 391, p. 306) granted *ex-parte* restraining the defendant from pouring water down his shaft with a view of tapping the brine supply of the plaintiffs at Marston, in Cheshire, recently again came before Mr. Justice North. Sir R. Webster for the defendant, said the evidence clearly showed that the defendant was not pumping water down his shaft, and did not intend to do so, because that course would ruin his works. The defendant was prepared to offer an undertaking not to do it.—Mr. Swinfen Eady was satisfied with the undertaking, and it was arranged that the motion should stand over generally, and come on with the original motion.

FIRE AT A CHEMICAL WORKS.—A fire occurred about five o'clock on Monday night at the chemical works of Messrs. Rumney, in Gorton Lane, Manchester. The firemen from Gorton and also a detachment of the Manchester brigade under Mr. Savage turned out, and on their arrival they found the top floor of the two-storey building burning. Already, however, something had been done to stop the progress of the fire. The workpeople of Messrs. Brooks and Doxey, whose premises adjoin Messrs. Rumney's works, had a hose in operation and were keeping the flames effectually in check when the brigade arrived and supplemented their efforts. In about an hour the fire was extinguished, but not before at least one-third of the building, together with the contents in the injured portion of it, had been seriously damaged.

LEAD IN THE MOSSLEY WATER SUPPLY.—At the last monthly meeting of the Mossley Town Council, the Medical Officer of Health reported that on the 1st ult. he accompanied Dr. Houston (who had been appointed by the Local Government Board to investigate the condition of the Swineshaw water) to Greenfield, afterwards going with him to Swineshaw, where all the springs were tested and found to be acid. The water from Higher Swineshaw running into Lower Swineshaw was ascertained to be as acid as the water in the gathering-ground. The Brushes reservoir was neutral, or contained such a small amount of acidity as not to have any action on the service-pipes. This acid condition of the water had the power of dissolving and corroding lead piping; and it would have to be neutralised by an alkali before the danger could be prevented and the water made absolutely safe for domestic purposes.

DEPRESSION IN THE SUGAR REFINING TRADE.—It is stated that it is intended to stop operations at the sugar refinery of Messrs. James Leitch & Co., Liverpool, a firm which has existed for about half a century, and one of the only two Liverpool houses which have continued to refine only cane sugar. The increased imports of raw and refined beet sugar from France, Germany, and Austria have so depressed prices (foreign "crystals" selling at about 1½d. per lb. wholesale) that cane growers find it pays them better to dispose of their produce in American or Eastern markets. Consequently only small quantities find their way to Liverpool, and it is difficult to manufacture these at a profit. Hence the closing of the refineries of Messrs. Heap and Messrs. Jager Brothers, of Liverpool, some years ago, and the intended stoppage of Messrs. James Leitch and Co.'s works—a stoppage which the firm hope will be only temporary, as it will throw out of work about 200 men. The Clyde Sugar Refinery at Greenock is, we learn, about to be reopened, and is to be worked by the Brewers' Sugar Co., West Burn-square, Greenock.

A PLEA FOR EQUITY IN SMOKE PROSECUTIONS.—Recently on the proposition of the Chemical Sectional Committee the Manchester Chamber of Commerce sanctioned the appointment of a deputation of chemical manufacturers to seek an interview with the Health Committee of the Manchester City Council for the purpose of showing what steps have been taken by chemical manufacturers for the abatement of smoke, and to request that a distinction may be made, as already partly promised, between intermittent fires and ordinary steam boiler fires.

THREATENED STRIKE IN THE TINPLATE TRADE.—An important conference of Welsh tinplate masters and men, to finally decide on the proposed reduction of 25 per cent. in the wage rate, was held on Tuesday last week, at the Town Hall, Llanelli, Mr. Ernest Trubshaw, manager of the Western Works, Llanelli, presiding. Keen interest was manifested throughout the Principality as to the result. The men's delegates reported that they had decided not to give a single sheet, and the employers then stated that they would consequently close the works. This caused considerable excitement, as the workmen throughout the trade will be subjected to a lockout, which will probably take effect shortly.

Market Reports.

TAR AND AMMONIA PRODUCTS.

There is little change in tar products, the tendency, if anything, being towards a decline in prices. Benzols are quoted 1s. 1½d. and 1s. 2d. Carbolic acids are stationary at 1s. 6d. for 60% crude, and 5½d. for 40% crystals. The weakest product is naphtha: crude is now quoted 5d., and solvent is offering at 1s. 1d. Creosote and anthracene are fairly steady. Pitch keeps firm at 41s. 6d. f.o.b. East Coast, and 39s. for forward, January to February.

The sulphate of ammonia market is in a very disturbed state. The rumour of certain London stocks being about to be placed upon the market is causing "bears" to be more active than ever. Quotations are very erratic, according to source of origin. Nearest mean values are:—Beckton £11. 12s. 6d., London outside makes £11. 15s., Liverpool £11. 13s. 9d., Hull £11. 13s. 9d., and Leith £11. 15s.

MISCELLANEOUS CHEMICAL MARKET.

The main products of the alkali trade are without any notable change during the past week, but there is generally a better feeling, and buying is more active, partly because of the anticipated improvement of values consequent upon the stoppage of the United Alkali Co.'s works: spot prices are quoted—bleaching powder, £7. 5s. per ton, f.o.r. makers' works, and £7. 10s., hardwoods, f.o.b.; white caustic soda, f.o.b. Tyne, 77%, £10. 7s. 6d.; f.o.b. Liverpool, 74%, £9. 7s. 6d.; 70%, £8. 7s. 6d.; 60%, £7. 7s. 6d. per ton, 10-ton lots and upwards. Chlorate of potash flat at 5½d. per lb., soda steady at 7¾d. per lb. Ammonia alkali, 58%, £3. 2s. 6d., bags, makers' works. Soda crystals £2. per ton, bags, f.o.r. Sulphate of copper has slightly improved in demand, and prices have a firmer tendency, present price is £14. 15s., f.o.b. Nitrate of soda unchanged, and spot parcels are offering at £8. 15s. to £9. per ton. Acetates of lime continue quiet, and prices remain unchanged: brown is worth £6. 10s., and grey £10. Acetate of soda stronger, and prices are higher: £15. c.i.f. is current quotation to-day. White powdered arsenic in brisk request, both for home and export, and good prices have been realized: £14. 10s. at Garston is to-day's value. Yellow prussiate of potash moves readily at 10½d., "scale" at 9¼d. per lb. Borax dull at £19. 10s. to £20. Ammonia salts still sell freely at former prices. Carbonate and caustic potash are in satisfactory demand, and prices continue steady. Carbolic acids rather weaker: crude, 60%, is still quoted 1s. 6d. per gallon, f.o.b., but there is not much business passing at this figure; crystal, 39/40°, has again fallen, and 5¼d. per lb. is quoted.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 42s. 5½d., Middlesbrough 35s. 5d. cash, and hematite 43s. 5½d. Copper, quiet: Chili bars, G. O. B.'s and G. M. B.'s, closed at £39. 13s. 9d. to £39. 18s. 9d. cash, and £40. to £40. 5s. three months. Tin, firm: Straits closed at £62. 10s. to £63. cash, and £62. 17s. 6d. to £63. 7s. 6d. three months; Australian, £62. 17s. 6d.; English ingots, £66. 10s. Lead, steady: Spanish, £9. 12s. 6d. to £9. 13s. 9d.; English, £9. 15s. to £9. 17s. 6d. Silesian spelter, ordinary, weak: £14. 6s. 3d. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 15s.; second hands, £6. 7s. 6d. Copper shares, quiet: Cape, 1⅞ to 1⅞; Copiapo, 1⅞ to 1⅞; Libiola, 3¼ to 3½; Mason and Barry, 1½ to 1¼; Rio Tinto, 14½ to 15; Tharsis, 4⅞ to 4⅞.

REPORT ON MANURE MATERIAL.

The market continues very quiet, and prices still tend in buyers' favour. Mineral phosphates are freely offered, but buyers do not respond very readily, their requirements being already covered well ahead. Florida rock, 75/80%, offers at 7¼d. c.i.f. to good U.K. ports, 1895 steamer shipment. South Carolina River Rock, 55/60%, at 6¼d. per unit; Peace River Rock, 60/65%, at 6½d. per unit; and 55/60% Algerian at 6¼d. Continental phosphates may be had at about the parity of the above prices.

River Plate cargoes of bones offer at £4. 10s. per ton, without finding buyers. Crushed Kurrachee bones, for shipment ahead, offer at £4. 12s. 6d. per ton, and sales of Bombay bone meal continue to be made at £4. 10s. per ton, ex quay Liverpool and Glasgow. Supplies on spot being scarce, prices are 2s. 6d. per ton higher than in the forward position. Common grinding and charring bones are in request, and find a ready sale at Liverpool. Nitrate of soda is slow in all positions. On spot ordinary quality may be had at 8s. 9d. per cwt., and fine quality at 8s. 10½d. per cwt. Due cargoes are worth barely 8s. 7½d. per cwt.; and later sailings about 8s. 9d. per cwt. There is nothing special to report in other material.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is firm, with little offering, business being restricted in consequence: small quantities of hard oils have been done at £20. 10s. and in Lagos at £23, spot. Olive is steady, but rather quiet, owing to the demand being small: prices vary from £30. to £39. per tun, according to quality. Linseed, after ruling steady, is to-day slightly easier, prices now being 21s. 3d. to 22s. per cwt. for Liverpool makes in export casks. After a comparative lull, cottonseed has again declined, Liverpool refined now being offered in barrels for export at 18s. 6d. to 19s. 3d. per cwt.; American, 19s. 6d. per cwt. Castor oil is steady, with a slightly easier tendency in French: good seconds Calcutta continues to find buyers at 2¼d. to 2½d. per lb., and first pressure French at 2½d. per lb. Tallow is steady, with a satisfactory demand: there is very little alteration in prices, North American being quoted 24s. 6d., South American 25s. to 27s., and Australian 24s. to 26s. 6d. per cwt. Resin is firm, and with comparatively small stocks, prices are well maintained for common and medium. Spirits of turpentine are steady on the whole: Mexican is unaltered at 20s., while American is in fairly good demand at 21s. per cwt. Petroleum is quiet at 4¼d. to 5½d. for American, according to quality, and Russian refined 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Nov. 16th, 1894, state:—

Chili charters for the past fortnight are cabled as 950 tons, making the total since 31st December last 18,650 tons, against 18,350 tons same time last year. Exchange 14¼d. Since our last we have had a quiet market for G.M.B.'s at reduced values, business being done at £40. 7s. 6d. cash and £40. 15s. three months, down to £39. 18s. 9d. and £40. 6s. 3d. respectively, closing to-day with sellers at 1s. 3d. more. The American exports during the past fortnight are advised as 2,275 tons. The total stocks in Liverpool, Swansea, London, and Havre are 49,236 tons, against 49,038 tons on the 2nd inst., showing an increase of 198 tons for the fortnight. The stocks include about 1,250 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,861 tons, against 52,789 tons on the 2nd inst., showing an increase of 72 tons. Refined and manufactured sorts are steady, quotations being:—Tough cake, £42. 5s. to £42. 10s.; best select, £42. 10s. to £43.; Indian sheets, £47.; strong sheets, £51.; and yellow metal sheets, 4¼d. per lb. The sales of furnace material comprise 62 tons Argentiferous and Auriferous Mexican Matte, 28 tons Argentiferous Chili Regulus, 34 tons Argentiferous and Auriferous Mexican Bars, and 5 tons River Plate Regulus, on private terms; 550 tons Spanish ore (10 per cent.), to arrive, at 7s.; and 3,000 tons ordinary Montana Matte to arrive here at 8s. 3d. per unit. It is reported that a further 1,000 tons of this matte has been sold at same price.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OIL.—Business all round in oils is more animated, and of a character encouraging confidence, which, after all, is the commodity par excellence required in all circles of business for future reaction. The Americans have about cleared this market of its surplus stock in linseed. Still heavy arrivals continue, but the aggregate result is a firmer tone and even higher prices in linseed oils. Linseed oil is firmer, and quoted spot 19s. 9d. to 19s. 10½d.; December, 19s. 6d. to 19s. 7½d.; January-April, 19s. 4½d., and May-August, 18s. 10½d. Boiled and refined ditto from £1. to £2. per ton extra. Casks, 17s. 6d., and ordinary barrels, 25s. per ton extra. Export for the week, 1,700 cwt. Cottonseed is a declining market, and during the week the arrivals have been 10,341 tons from Alexandria. Refined cotton oil slow: Sellers at 16s. 7½d. naked spot, and 16s. 9d. November-April; May-August, 17s. 6d. Crude spot and November-April 15s. to 15s. 1½d. naked. Export of refined for the week 4,680 cwt. Rape oil in better demand, especially the best brands of refined, but prices are practically unaltered, but firm. Tallow, town melted, £24. "Vegaline," the new vegetable butter, white and neutral, for confectionery purposes, £30. per ton. Olive oil unchanged. Cod oil £16. 10s. to £18. per ton. Pine oil, £6. 5s. per ton. Turpentine, 21s. 6d. per cwt. Soft soap, 14s. 6d. per cwt. Boiled drying oil £13. per ton. Sod oil quiet.

CAKES.—Linseed cakes, 95% pure, £6. 12s. 6d. Russians, £6. 2s. 6d. to £6. 12s. 6d. Oilcakes, £5. 15s. Cotton cake orders rather slower, temporarily, owing in part to Martinmas hirings; best new seed, £3. 17s. 6d.; old seed, £3. 12s. 6d. to £3. 15s. Rape Cakes: Feeding, £4. 7s. 6d.; East Indian, £3. 15s.; Black Sea, £2. 15s. per ton.

PAINTS continue quiet, but makers are fairly busy, the open weather contributing to stimulate an unseasonable demand. White and red leads, also oxide of zinc, unchanged. Venetian red, dry, from £3. 17s. 6d. Red oxide of iron, dry, from £7. to £18. per ton. Blue black £4. per ton. Yellow ochre from £3. 15s. Venetian red, black, yellow ochre, blue, and oxide paints from £12. per ton, or even less for bulk orders. Paint remover 30s. per cwt. Black varnish, £5. 10s. per ton, barrels free. Oak varnish from 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

Sulphate of ammonia remains next door to lifeless, but makers and holders apparently have belief in the early future, for they stick pretty firmly to their quotations, and are in no mood for making any but very small concessions. Prices are lower than they were a week ago, but little more than fractionally so, and that in spite of a crying scarcity of buyers. Spot Leith terms have been done at £11. 17s. 6d., but not lower, so far as the open market is aware. Delivery over the early months of the incoming year has been offered by makers at £12. 5s., but without tempting any buyer.

The general chemicals market is very low of condition, there being little or no inquiry, and nearly all the values show signs of still further leaning to the downward grade, without, however, as yet any additional drop, except in the case of chlorate of potash, which is again cheaper. Dye chemicals are all very quiet, Scotch dyeing and printing being at present depressed, and with little prospect of any very early bettering.

Mineral oils and paraffins all continue in strong delivery, with the old prices well maintained, and in the case of paraffin spirit advanced further, having in one or two instances fetched 6d. per gallon.

Chief prices current are:—Soda crystals, 37s. 6d. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 7s. 6d., 70/72° £8. 7s. 6d., 60/62° £7. 7s. 6d., and cream 60/62° £7. 5s. all nett, Liverpool; bleaching powder, £7. 5s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5½d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £11. 17s. 6d. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 5½d. to 6d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 11,600 bags beet refined, 8,310 bags beet unrefined.

TYNE CHEMICAL REPORT.

TUESDAY.

In the chemical trade there is absolutely no change to-day: prices unaltered, and business quiet. Sulphur scarce, at £4. per ton. The prevalent rumours as to closing of the Tyne works have been somewhat exaggerated, though it is understood that most of them will close for the Christmas holidays fully a week before the usual time.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £1. 17s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, £1. 17s. 6d. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT quiet, at 9s. per ton, f.o.b. Tees. Shipments easier.

COALS—Trade is dull, and several collieries are working short time. Manufacturing coals quiet, with a decreasing demand as the holidays approach. To-day's prices are as under: Best Northumbrian steam, 9s. 6d. per ton; second qualities do., 8s. 6d. per ton; small steam, 4s. 3d. per ton; gas coals steadier, 7s. 6d. per ton; coke weak, 14s. per ton.

New Companies.

Chenhall and Co., Ltd.—CAPITAL, £5,000., in shares of £1. each. This company has been formed to acquire the rights of manufacturing certain soaps, including the Wizard burnishing soap.

Powdered Plastic Paint Co., Ltd.—CAPITAL, £5,000., in shares of £1. each. This company has been formed to work a process, not made known, for the manufacture of plastic paint.

Velto Co., Ltd.—CAPITAL, £5,000., in shares of £1. each. This company has been formed to acquire the business of Mr. M. N. Corcoran, and to trade as soap manufacturers and perfumers.

Grasshill Lead Mining Co., Ltd.—CAPITAL, £6,400., in shares of £1. each. This company has been formed to acquire certain lead mines in Middleton-in-Teesdale, Durham, and to work and search for lead ore, sulphate and carbonate of barytes, and other minerals.

John Berrie, Ltd.—CAPITAL, £50,000., in shares of £1. each. This company has been formed to take over the business of dyers and cleaners, and to trade as dealers in, and manufacturers of, dyes, drugs, and chemicals. The subscribers to the memorandum of association are: J. T. Thompson, 116, Navill-road, Stoke Newington, gentleman; F. W. Wroot, Finsbury Park, clerk; L. Goldspink, 15, George-street, E.C., accountant; H. H. Lambert, 15, George street, E.C., clerk; F. Welsh, 196, St. John-street, E.C., gentleman; H. V. Pounney, 9, Derby-street, W.C., gentleman; C. H. Watson, Camberwell, clerk.

John Bentley and Sons, Ltd.—CAPITAL, £10,000., in shares of £5. each. This company has been formed to acquire the works of Messrs. J. W. and E. Bentley, at Horsforth, near Leeds, and to trade as manufacturers of oils, grease, drysalteries, ammonia distillers, etc. The subscribers to the memorandum of association are: J. W. Bentley, Sandywell Cottage, Horsforth, soap manufacturer; Polly Bentley, Sandywell Cottage, Horsforth, soap manufacturer; E. Bentley, Broadbent Buildings, Horsforth, soap manufacturer; Annie Bentley, Horsforth; J. Burrow, Horsforth, spinster; J. Heason, Mirfield, railway agent; S. Farrar, Castleton Inn, Armley, licensed victualler.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

A. reduction of Caustic Soda and Potash and Hydroxides of Barium and Strontium. M. N. d'Adria. 21,774. November 12.
Evaporating Pans for Concentrating Sulphuric Acid, &c. I. S. McDougall. 21,778. November 12.

Electro Chemical Apparatus. W. Bein. 21,838. November 12.
 Apparatus for the Decomposition of Salt in the Formation of Sulphate of Soda. W. Thomson and P. J. Worsley. 21,945. November 13.
 Improvements in Furnaces for Treating Ores and Chemicals. W. Thomson and P. J. Worsley. 21,946. November 13.
 Improved Manufacture of Ferric Sulphate. W. Wyld and J. H. Cox. 21,962. November 14.
 Improved Manufacture of Ferric Sulphate. W. Wyld and J. H. Cox. 21,963. November 14.
 Manufacture of Nitro-Cellulose or Pyroxylin Compounds. F. Greening. 22,019. November 14.
 Improvements in the Manufacture of Alloys. H. Moissan. 22,023. November 14.
 Apparatus for the Manufacture of Coke. H. Schon. 22,034. November 14.
 Artificial Fuel. W. H. Biggs and R. R. Greenhow. 22,036. November 14.
 Improvements in the Extraction of Gold and Silver. J. C. Quinn and R. McDougall. 22,061. November 15.
 Process and Apparatus for the Electrolytic Decomposition of Metallic Salts, &c. J. Hargreaves and T. Bird. 22,070. November 15.
 Dyewood Extractor. H. S. Wilkinson. 22,174. November 16.
 Manufacture of Ammonia and Bye-Products. H. H. Lyke. 22,207. November 16.
 Manufacture of New Crystalline Salts Containing Compound Silicates. J. J. Crossfield and G. G. Johnson. 22,251. November 17.

Apparatus for Ascertaining the Acidity of Liquids. J. Benson. 22,262. November 17.

Gazette Notices.

PARTNERSHIP DISSOLVED.

G. S. TUNKS AND E. R. PULHAMPTON, electrical engineers and oven builders, Cardiff, under the style of Tunks and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Order.

HARRINGTON, WILLIAM JOHN, Hampstead-road, N.W., out of business, formerly oil and colour merchant's manager.

Adjudication.

MANTERTON, D. S. R., Guiseley, Yorks. late Bradford in partnership with C. R. Mather, under the style of D. S. Masterton and Co, traveller, late soap manufacturer.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.					
Week ending November 17th.					
Acetanilide —					
Holland, 7 pkgs.	F. Boehm				
Acetate of Lime —					
U. States, 420 pkgs.	Lister & Biggs				
" 807	W. Johnston & Co.				
Acetic Acid —					
Holland, 105 pkgs.	Beresford & Co				
" 100	A. & M. Zimmermann				
Acetone —					
Germany, 10 pkgs.	H. Lorenz				
Holland, 8	Elkan & Co.				
" 1	Beresford & Co.				
" 6	A. & M. Zimmermann				
Albumen —					
N. Russia, 6200	A. Finsler				
Alkali —					
Holland, 16 c.	G. Rahn & Co.				
France, 220	Arnati & Harrison				
Belgium, 200	"				
Alum —					
Holland, 235 pkgs.	Oehlenschlaeger Bros				
Belgium, 37	R. W. Greff & Co				
Ammonium Chloride —					
Holland, 4 pkgs.	F. Boehm				
Aniline —					
Holland, 10 pkgs.	L. C. & D. Rly. Co.				
Anthracene —					
Holland, 162 pkgs.	Burt, Boulton, & Co.				
Antimony Ore —					
Japan, 15 t.	H. R. Merton & Co.				
Asbestos —					
Italy, £200	J. Knill & Co.				
" 73	W. Newbold & Co.				
Canada, 380	W. Byford				
" 2,500	Deering & Robottom				
" 888	G. Ward & Sons				
Barium Chloride —					
Holland, 33 pkgs.	Petri Bros.				
Barytes —					
Holland, 24 cks.	Burrell & Co.				
" 11	F. Robertson & Co.				
" 59	D. Storer & Sons				
Belgium, 207	W. Harrison & Co.				
" 45	Leach & Co.				
" 5 pkgs.	J. L. Lyon & Co.				
Boracic Acid —					
Italy, 13 pkgs.	Coml. L. Co.				
Bromide of Iron —					
Germany, 3 pkgs.	A. & M. Zimmermann				
Camphor —					
Hong Kong, 125 pkgs.	City Coml. Wf. Ltd.				
China, 307	S. Figgis & Co.				
" 10	R. Warner & Co., Ltd.				
Caoutchouc —					
E. Indies, 20 c.	Anderson, Weber, & Smith				
" 22	L. & I. D. Jt. Co.				
Zanzibar, 203	"				
" 16	Major & Field				
" 47	Forbes, Forbes, & Co.				
" 81	Clarke & Smith				
" 26	Wallace Bros.				
" 175	S. Figgis & Co.				
Germany, 64	Wallace Bros.				
" 72	Prop. Bull Wf. L. & I. D. Jt. Co.				
Madagascar, 177	"				
" 8	W. M. Smith & Sons				
" 305	Procter Bros.				
" 3	Hammond & Co.				
" 82	Prop. Bull Wf.				
" 68	Blyth, Green, & Co.				
Aden, 10	Forbes, Forbes, & Co.				
C. America, 32	Somes & Co.				
Germany, 3	T. H. Lee				
Mauritius, 2	Elkan & Co.				
Pe u, 93	Prop. Bull Wf.				
Savanna, 24	Royal Mail S.S. Co.				
Madagascar, 16	Kleinwort, Sons, & Co.				
E. Indies, 14	J. P. Alpe & Co.				
" 380	Huttenbach & Co.				
C. America, 38	Price, Hickmann, & Co.				
France, 12	Gray, Dawes, & Co.				
" 17	Anderson, Weber, & Smith				
" 20	H. Johnson & Sons				
N. Russia, 54	Lewis & Peat				
U. States, 14	Anderson, Weber, & Smith				
Castor Oil —					
France, 20 brls.	Beresford & Co.				
" 35	Lucas & Spencer's Wf. Ltd.				
" 57 cks.	J. Greig				
Italy, 10 cks.	Hodgkinson Preston & Co.				
France, 12 brls.	Grindley & Co.				
Caustic Potash —					
Belgium, 50 c.	Petri Bros.				
France, 200	J. Knight & Sons				
Chemicals (otherwise undescribed)					
Germany, 99 pkgs.	T. H. Lee				
" 5	L. & I. D. Jt. Co.				
" 6	Stobbs, Wilson, & Co.				
" 27	A. & M. Zimmermann				
" £11	Phillipps & Graves				
" 20	W. J. Bush & Co.				
Belgium, 6 pkgs.	T. Palmer				
Holland, 6	L. C. & D. Rly.				
" 14	J. Barber & Co.				
" 2	J. T. Rennie, Son, & Co.				
" 2	Beresford & Co.				
Chrome Ore —					
Australia, 11 t.	G. G. Blackwell, Son, & Co.				
Cream of Tartar —					
Spain, 5 pkgs.	B & F. Wf. Co.				
France, 5	"				
" 5	F. C. Devon & Co.				
" 15	W. C. Bacon & Co.				
Italy, 19	Howards & Sons				
Dextrine —					
Germany, 50 pkgs.	F. Fink & Co.				
" 10	Prop. Sun Wf.				
" 150	Hernu, Peron, & Co.				
Dyestuffs —					
Annatto					
Ceylon, 18 pkgs.	Major & Field				
Argols					
Italy, 31 pkgs.	Thames S. T. & L. Co., Ltd.				
" 756	B. Jacob & Sons				
Cochineal					
Germany, 8 pkgs.	J. W. Borland				
Cutch					
N. Russia, 3 pkgs.	M. D. Co.				
E. Indies, 3	Lyall, Anderson, & Co.				
Diyl Diyl					
Trinidad, 252 pkgs.	Low, Son, & Co.				
Extracts					
France, 200 drs.	Carey & Sons				
" 8 pkgs.	Major & Field				
Germany, 10	T. H. Lee				
Belgium, 100	"				
France, 8	"				
U. States, 100	Skillbeck Bros.				
Melbourne, 107 cs.	Low, Son, & Belford				
Indigo					
E. Indies, 6 cts.	L. & I. D. Jt. Co.				
Logwood					
Jamaica, 15 t.	Hawthorn, Shedden, & Co.				
Madder					
France, 3 pkgs.	Skillbeck Bros.				
Holland, 15	"				
Myrabolams					
E. Indies, 1,334 pkgs.	Darling Bros.				
" 1,920	Lucas & Spencer's Wf., Ltd.				
Oreohella					
Madagascar, 31 pkgs.	Procter Bros.				
Shumac					
Italy, 200 pkgs.	F. & L. Sitzler				
" 200	W. Shelcott				
" 100	Fisher, King, & Co.				
" 1,300	J. Kitchin, Ltd.				
" 1,000	Bevington & Sons				
Tanner's Bark					
Natal, 50 t.	Boutcher, Mortimore, & Co.				
Adelaide, 56	J. Greig				
Germany, 31	Baxter & Hoare				
Adelaide, 65	Anning & Cobb				
Sydney, 24	Co-op. Lightgr. Association, Ltd.				
Turmeric					
E. Indies, 273 pkgs.	Major & Field				
" 110	S. Figgis & Co.				
" 33	Lucas & Spencer's Wf., Ltd.				
Valonia					
A. Turkey, 779	M. D. Co.				
" 31	Boutcher, Mortimore, & Co.				
Dyestuffs (otherwise undescribed)					
France, 10 pkgs.	W. Burton & Sons				
Farina —					
Germany, 200 pkgs.	Dunlop Bros. & Co.				
Holland, 25	J. Barber & Co.				
Glucose —					
Germany, 15 pkgs.	35 c. Dutrulle, Solomons & Co.				
" 100	100 c. P. Windmuller & Co.				
France, 60	Carey & Sons				
U. States, 98	588 Deering & Robottom				
" 50	275 C. Southwell & Co.				
" 50	286 H. Johnson & Sons				
" 50	284 J. T. Morton				
" 350	2,100 L. Sutro & Co.				
" 300	1,713 Soundy & Sons				
" 100	550 Pullo, Jones & Co.				
Lead Acetate —					
Holland, 15 pkgs.	F. Boehm				
Magnesium Sulphate —					
Germany, 200 pkgs.	C. J. Capes & Co.				
Manure —					
Chili, 2 260 t.	W. Montgomery & Co.				
France, 25	J. Burnett & Sons				
Germany, 30	W. G. Blagden				
Italy, 175	Anglo-Cont. Guano Wks.				
E. Indies, 750	A. Hunter & Co.				
Madagascar, 8	"				
Germany, 6	F. W. Berk & Co., Ltd.				
Methyl Alcohol —					
Belgium, 10 cks.	Lister & Biggs				
Germany, 5 dms.	"				
Mica —					
E. Indies, £85	L. & I. D. Jt. Co.				
Canada, 380	"				
Ochre —					
A. Turkey, 11 cks.	O'Hara & Hoar				
France, 41	W. Harrison & Co.				
" 42 brls.	Burrell & Co.				
" 1 ck.	J. L. Lyon & Co.				
Spain, 25 cks.	"				
Holland, 12 pkgs.	Phillipps & Graves				
Belgium, 100	Arnati & Harrison				
Paraffin Wax —					
U. States, 650 brls.	H. Hill & Sons				
" 2,108	830 pkgs Anglo-Am. Oil Co.				
" 100	L. Sutro & Co.				
" 110	G. H. Frank				
Phosphate Rock —					
Belgium, 50 t.	Sawer, Sons, & Co.				
France, 310	A. Hunter & Co.				
Belgium, 235	West & Penrose				
U. States, 830	A. Hunter & Co.				
Pitch —					
U. States, 15 brls.	Carraganza Manu- facturiag Co.				
Holland, 6	Abbey, Abbey & Co.				
Plumbago —					
Ceylon, 217 bls.	R. G. Hall & Co.				
" 70 brls.	Doulton & Co.				
" 356	J. Thredder, Son, & Co.				
Germany, 11 cks.	G. Mayo & Co.				
Potash —					
Canada, 240 c.	Charles & Fox				
Potassium Bicarbonate —					
Holland, 5 pkgs.	A. & M. Zimmermann				
Potassium Carbonate —					
France, 136 c.	J. A. Reid				
" 100	Petri Bros.				
" 40	F. J. Putz & Co.				
Holland, 14	Spies Bros. & Co.				

Colours—			Bremen, 2,638			Veltmann & Co.			Nitrite—			Rosin—		
Hamburg,	4 cks.	10 cks.	G. Malcolm & Son			Stearine—	60 brls.	Wilson, Sons, & Co., Ltd.	Rotterdam,	6 cks.	J. Rankine & Son	New York,	500 brls.	
Antwerp,	38		Bailey & Leatham			Ultramarine—						Saltpetre—	20 kgs.	Tyne S. S. Co.
"			Sissons Bros. & Co.			Rotterdam,	2 cks.	Hutchinson & Son	Ochre—	20 cks.		Soap—	3 cks.	Tyne S. S. Co.
Rotterdam,	6					Varnish—			Oxalic Acid—	12 cks.	J. Rankine & Son	Soda—	14 cks.	Tyne S. S. Co.
"	47 pks.		Hutchinson & Son			New York,	20 pks.	Wilson, Sons, & Co., Ltd.	Painters' Colours—			Starch—	80 cks.	Tyne S. S. Co.
"	4 cks.		W. & C. L. Ringrose			"	10 brls.	Blundell, Spence, & Co.	Hamburg,	3 cks.	4 cks.	Rotterdam,	16	"
Amsterdam,	1					Waste Salt—			Rotterdam,	2	15 pkgs.	Antwerp,		
Hamburg,	10	21 pks.	Wilson, Sons, & Co., Ltd.			Hamburg,	qty.	Bailey & Leatham	Antwerp,	5 cks.	1 cks.	Tartaric Acid—	4 cks.	Tyne S. S. Co.
Ghent,	6					White Lead—			Paraffin Scale—			Varnish—	6 brls.	Tyne S. S. Co.
Danzig,	5 pkgs.		Wilson, Sons, & Co., Ltd.			Antwerp,	45 cks.	Bailey & Leatham	New York,	350 brls.		Zinc Oxide—	25 brls.	Tyne S. S. Co.
"	27					Rotterdam,	38	W. & C. L. Ringrose	Pitch—	9 cks.				
Bremen,	1 cks.		Veltmann & Co.			"	20	Hutchinson & Son	Potash—	20 cks.	J. Rankine & Son			
Cresosote—						Wood Pulp—			Potassium Carbonate—					
Copenhagen,	3 cks.		Wilson, Sons, & Co., Ltd.			Helsingfors,	285 brls.	J. Good & Sons	Hamburg,	18 cks.				
Dextrine—						"	105	Furley & Co.	Potassium Nitrate—					
Stettin,	350 bgs.		Wilson, Sons, & Co., Ltd.			Hamburg,	245		Hamburg,	68 cks.				
Dyestuffs—						"	98 brls.	Wilson, Sons, & Co., Ltd.	Potassium Prussiate—					
Alizarine									Antwerp,	10 dms.				
Rotterdam,	52 brls.		Hutchinson & Son						Rosin—					
Madder									New York,	700 brls.				
Marseilles,	3 cks.		Wilson, Sons, & Co., Ltd.						Soap—					
Amsterdam,	10								Rotterdam,	4 cks.	J. Rankine & Son			
Rotterdam,	1		Hutchinson & Son						Sodium Prussiate—					
"	3		W. & C. L. Ringrose						Antwerp,	3 cks.				
Myrabolams									Starch—					
Bombay,	9,111 bgs.								New York,	1,825 bxs.	J. Rankine & Son			
Farina—									Rotterdam,	100 cks.				
Hamburg,	250 bgs.		W. & C. L. Ringrose						Amsterdam,	24				
Stettin,	600 bgs.		Wilson, Sons, & Co., Ltd.						Stearine—					
"	200								Antwerp,	62 bgs.				
Ghent,	60	168 bxs.	"						Tallow—					
Glucose—									New York,	50 tcs.				
New York,	299 brls.								Tartar—					
Rotterdam,	60 bgs.		Hutchinson & Son						Bordeaux,	28 cks.				
Ochre—									Nantes,	9				
Marseilles,	15 cks.		Wilson, Sons, & Co., Ltd.						Varnish—					
"	22 cks.								Rouen,	14 cks.				
Paint—									Waste Salt—					
New York,	46 cks.	1 brl.	Wilson, Sons, & Co., Ltd.						Hamburg,	507 bgs.	237 cks.	91½ t.		
Marseilles,	50								White Lead—					
New York,	50		J. Good & Sons						Rotterdam,	50 cks.	J. Rankine & Son			
Boston,	15		Wilson, Sons, & Co., Ltd.						Wood Pulp—					
Philadelphia,	45 brls.								Rotterdam,	530 brls.	J. Rankine & Son			
Phosphate—									Christiania,	850				
Ghent,	800 bgs.		Wilson, Sons, & Co., Ltd.						Zinc Oxide—					
Pumice Stone—									New York,	50 brls.				
Leghorn,	19 pks.		Wilson, Sons, & Co., Ltd.						Antwerp,	25 cks.				
"	83								Zinc Sulphate—					
Pyrites—									Hamburg,	38 cks.				
Huelva,	494 t.								Zinc White—					
Saltpetre—									Rotterdam,	210 cks.	J. Rankine & Son			
Hamburg,	20 cks.													
"	5 cks.		Lothouse & Saltmer											
Antwerp,	135 bgs.		Wilson, Sons, & Co., Ltd.											
Soap—														
Marseilles,	3 cks.		Wilson, Sons, & Co., Ltd.											
Starch—														
Rotterdam,	69 cks.		Hutchinson & Son											

GLASGOW.

Week ending November 22nd.

Acetic Acid—	Rotterdam,	8 cks.	J. Rankine & Son
Alum—	Rouen,	8	
Amyl Acetate—	Hamburg,	163 cks.	
Aniline—	Rotterdam,	12 cks.	16 brls. J. Rankine & Son
Aniline Salt—	Rotterdam,	2 cks.	65 brls. J. Rankine & Son
Arachide Oil—	Rotterdam,	13 cks.	J. Rankine & Son
Asbestos—	New York,	10 bgs.	
Barytes—	Rotterdam,	106 cks.	J. Rankine & Son
Barytes Sulphate—	Antwerp,	952 bgs.	
Carbonic Acid—	Rotterdam,	15 tubes.	J. Rankine & Son
Castor Oil—	Antwerp,	113 cks.	
Cottonseed Oil—	New York,	10 brls.	
Dyestuffs—			
Alizarine	Rotterdam,	28 brls.	2 bxs. 25 pkgs. J. Rankine & Son
Annatto	Bordeaux,	3 cks.	
Cutch	Calcutta,	3 cks.	
Extracts	Antwerp,	2 cks.	
Glucose—	Nantes,	106	
Lead Acetate—	New York,	750 brls.	
	Rotterdam,	17 cks.	J. Rankine & Son

TYNE.

Week ending November 17th.

Alum Earth—	Hamburg,	36 cks.	Tyne S. S. Co.
Barytes—	Rotterdam,	28 cks.	Tyne S. S. Co.
Carbonic Acid Gas—	Antwerp,	148 bgs.	"
Cod Oil—	Rotterdam,	50 tubes.	Tyne S. S. Co.
Pyrites—	Huelva,	1,557 t.	Scott Bros.

GOOLE.

Week ending November 14th.

Alkali—	Hamburg,	1 cks.	
Alum—	Rotterdam,	56 bgs.	
Antimony—	Boulogne,	1 cks.	
Chemicals (otherwise undescribed)	Hamburg,	10 cks.	
Dyestuffs—			
Alizarine	Rotterdam,	62 pkgs.	
Extracts	Rouen,	25 cks.	
Logwood	Ghent,	75	
Dyestuffs (otherwise undescribed)			
Boulogne,	17 cks.	8 cks.	2 pkgs.
Ghent,	8		
Rotterdam,	116		
Farina—	Hamburg,	874 bgs.	
Glucose—	Delfsryhl,	530	
Potash—	Hamburg,	30 cks.	
Starch—	Hamburg,	4 cks.	
Sulphur Ore—	Dunkirk,	1	60 dms.
Yarnish—	Antwerp,	160 cks.	
Waste Salt—	Seville,	1,390 t.	
	Antwerp,	30 cks.	
	Hamburg,	210 t.	1,485 cks. 650 bgs.

GRIMSBY.

Week ending November 17th.

Caoutchouc—	Hamburg,	9 cks.	6 cks.
Chemicals (otherwise undescribed)	Rotterdam,	15 cks.	
Coal Tar Dyes—	Hamburg,	14	
Starch—	Rotterdam,	1 cks.	
Zinc Ashes—	Antwerp,	72 pkgs.	
	Hamburg,	54	
	Antwerp,	34 cks.	
	Antwerp,	25 cks.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 21st.

Acids—	Natal,	1 t.	10 c.	£16
Aluminous Cake—	Calcutta,	37 t.		£135

Ammonia (Liquid)—

Cadiz,	4 cks.	£80
Gibraltar,	1 c.	9
Ammonium Carbonate—		
B. Ayres,	6 pkgs.	£45
Yokohama,	2 t.	78
New York,	35 kgs.	65

Ammonium Chloride—

Bombay,	10	22
Constantinople,	10 c.	£17
Mersyne,	10	21
Philadelphia,	17 cks.	108
Ammonium Sulphate—		
Hamburg,	100 t.	£1,200

Valencia,	50	600
Alicante,	10	135
Rotterdam,	30	365
Cologne,	25	305
Arsenic—		
Brisbane,	1 t.	£10
Barium Binoxide—		
Melbourne,	4 c.	£10

Barium Nitrate — New York, 3 t. 5 c. £63	Muriate of Lime — B. Ayres, 1 t. 11 c. £7	Alumina Sulphate — Calcutta, 55 t. 7 c. 2 q. £151	New York, 10 100
Boracic Acid — Melbourne, 10 c. £16	Oxalic Acid — Brisbane, 1 t. 7 c. £45	Aluminoferrie — Portland, O., 25 t. 6 c. £76	Odessa, 35
Sydney, 15 kgs. 24	Phosphoric Acid — Demerara, 72 cks. £268	Ammonium Carbonate — Genoa, 1 t. £34	Palermo, 35
Borax — Townsville, 5 c. £10	Phosphorus — Wellington, 2 cs. £24	Venice, 1 t. 34	San Francisco, 10
Melbourne, 5 t. 260	Potash Salts — Natal, 28 t. 7 c. £4 570	Marseilles, 1 14 c. 2 q. 21	Santos, 25
Sydney, 20 kgs. 22	Delagoa Bay, 12 18 2,050	Bordeaux, 1 3 35	Tarragona, 25
Carbolic Acid — Demerara, 5 cs. £19	Potassium Bicarbonate — New York, 35 pkgs. £72	Danzig, 1 5 3 45	Adelaide, 18
Singapore, 16 c. 14	Potassium Bichromate — Brisbane, 5 c. £12	Veile, 1 1 3 38	Alexandria, 3
Treport, 10 cks. 64	Potassium Chlorate — New York, 10 t. 16 c. £560	Hamburg, 18 3 33	Amsterdam, 150
Delagoa Bay, 20 12	Potassium Chloride — Dunkirk, 50 t. £425	Corunna, 10 3 18	Antwerp, 32
Brisbane, 2 10	Potassium Cyanide — E. London, 5 c. £23	Ammonium Chloride — Malta, 4 c. £8	Bombay, 115 59 cks.
Carbon Bisulphide — B. Ayres, 100 dms. £60	Salicylic Acid — Cape Town, 1 cs. £25	Rotterdam, 5 2 q. 9	Calcutta, 140
Carbonic Acid Gas — Barcelona, 8 c. £25	Saltpetre — Wellington, 10 c. £12	Alexandria, 2 t. 74	Carupano, 8
Caustic Soda — Wellington, 5 t. 16 c. £60	Oporto, 3 t. 14 77	Beyrout, 15 28	Fume, 45
Wanganui, 4 18 41	Brisbane, 10 11	B. Ayres, 13 24	Kurrachee, 10
Melbourne, 25 14 278	Lisbon, 3 13 79	Philadelphia, 40 2 1,041	Montreal, 10 10
Dunedin, 10 4 104	Gibraltar, 5 112	Portland, O., 11 22	N. Orleans, 100
Penang, 5 6	Wellington, 15 18	Campana, 2 4	Oporto, 33
Sydney, 1 18 25	Flushing, 12 27	Ammonium Sulphate — Boston, 50 t. 5 c. £680	Pernambuco, 111
Natal, 4 6	Bilbao, 3 15 83	Santos, 9 3 q. 7	Port Louis, 30
Mauritius, 2 12 30	Rio de Janeiro, 49 2 1,154	Las Palmas, 20 255	Rio de Janeiro, 24
Chemicals (otherwise undes.) — Natal, 4 cs. £23	Melbourne, 2 10 58	New York, 86 10 1,162	San Francisco, 80 10 bxs. 20 cs. 15
Madrid, 18 c. 71	B. Ayres, 3 6	Philadelphia, 5 71	Sydney, 106
Bombay, 2 t. 2 140	Sheep Dip — Christchurch, 6 c. £25	Rotterdam, 50 7 2 605	Trieste, 15
Melbourne, 114 kgs. 1 cs. 52 cks. 156	B. Ayres, 1,500 cs. 3,500	Valencia, 47 15 565	Chemicals (otherwise undes.) — Nantes, 1 t. £36
Yokohama, 4 11	M. Video, 205 615	Alicante, 10 8 3 128	Venice, 10 c. 17
Citric Acid — Rotterdam, 5 kgs. £31	Algoa Bay, 1 t. 18 87	Barcelona, 10 10 1 129	Rotterdam, 10 20
Oporto, 8 cks. 54	Jamaica, 15 dms. 17	Antimony — Bilbao, £9	Piraeus, 6 18
Algoa Bay, 1 c. 9	Dunedin, 7 1 130	B. Ayres, 1 cs. 2	New York, 9 8 320
Melbourne, 10 62	Natal, 5 12	Manao, 2 2	Kurrachee, 1 19 70
Genoa, 10 72	Calcutta, 60 dms. 37	Rosario, 2 2	Vera Cruz, 1 1 q. 3
Cadiz, 2 14	Wellington, 20 dms. 355 cs. 1,121	San Juan, 1 1	Bombay, 4 1 173
Wellington, 2 16	Slag — Cape Town, 125 t. £313	Santander, 1 1	Calcutta, 2 5 86
Coal Products — Aniline Dyes Melbourne, 1 cs. £21	Soda Ash — Auckland, 1 t. 11 c. £11	Pernambuco, 1 1	Philadelphia, 12 16 429
Aniline Oil New York, 5 dms. £130	Soda Crystals — Demerara, 2 t. 3 c. £10	Porto Alegre, 1 ck. 1	China Clay — Bombay, 25 t. 210
Aniline Salts New York, 16 cks. £100	Sodium — Ghent, 15 c. £160	Barytes — Syra, 4 cks. 1	Boston, 210
Anthracene Dusseldorf, 84 cks. £670	Sodium Bicarbonate — Dunedin, 1 t. £8	Bisulphite of Lime — Portland, M., 12 c. £7	Calcutta, 30
Rotterdam, 60 295	Brisbane, 5 36	Baltimore, 220 cks. 841	Porto, 28 cks. 5 brls.
Benzol — Treport, 52 cks. £199	Iquique, 8 c. 7	Boston, 841 7 brls. 10 bxs.	Lisbon, 3 8 c. 14
Coal Tar Dyes — Boston, 6 cks. £84	Sodium Hyposulphite — Adelaide, 26 t. 11 c. £138	B. Ayres, 146 22	Naples, 20 14
Paraffin Wax — Melbourne, 40 bgs. £60	Sodium Hypophosphite — New York, 2 c. £31	Havana, 25 22	Chloroform — Bombay, 1 cs. 1
Pitch — Sydney, 11 pkgs. £10	Sodium Silicate — Jamaica, 1 t. 12 c. £6	Havre, 25 22	Portland, 2 2
Dunkirk, 1,004 t. 1,757	Sodium Tartrate — Oporto, 6 c. £19	Konigsberg, 22 40	Vera Cruz, 1 1
Boston, 550 brls. 700 cks. 930	Strontium Carbonate — New York, 1 t. £34	Montreal, 22 40	Chromium Trioxide — Hamburg, 1 t. £61
Gothenburg, 30 19	Strontium Nitrate — New York, 6 t. 4 c. £151	Newport News, 39 75	Coal Products — Aniline Colours New York, 2 kgs. 11 cks.
St. Nazaire, 1,130 t. 2,260	Sulphur — Demerara, 5 t. 17 c. £40	Philadelphia, 50 30	Aniline Salts Boston, 8 cks. 41 cs.
Sables d'Olonne, 457 925	Sulphuric Acid — Natal, 20 cs. £11	Leghorn, 30 15	New York, 10 41
Rocheport, 639 1,278	Superphosphate — Amsterdam, 1 t. 13 c. £10	Montreal, 15 5	Anthracene Rotterdam, 67 cks.
Pyridine — Stettin, 5 cks. £34	Madras, 10 4 43	Piraeus, 5 250	Creosote Oil Cette, 500 cks.
Tar — Boston, 296 brls. £148	Tartar Salts — Lisbon, 11 c. £12	San Francisco, 100 8	Creosote Salts Antwerp, 570 pkgs.
Brisbane, 50 dms 50 pkgs 19	Tartaric Acid — B. Ayres, 1 t. 10 c. £141	Windsor Hall, 59	Pitch Alexandria, 24 t. 868
Cape Town, 200 9	Manure — Demerara, 1 t. 5 c. £15	Boracic Acid — Rotterdam, 2 c. £3	Cette, 2 cks.
Wellington, 25 5	Lisbon, 32 9 225	Borax — Hamburg, 4 t. 5 c. £80	Tar Honolulu, 75 dms. 20 brls.
Copper Sulphate — Brisbane, 1 t. £15	Cape Town, 75 31	Vera Cruz, 17 2 q. 19	Cobalt Oxide — Hamburg, 3 c. £75
Cream of Tartar — Wanganui, 7 c. £29	Sulphur — Demerara, 5 t. 17 c. £40	Rotterdam, 8 15 181	Gijon, 1 3 q. 64
Algoa Bay, 6 19	Sulphuric Acid — Natal, 20 cs. £11	M. Video, 2 7 1 47	Cod Oil — Bombay, 7 hds.
Sydney, 3 t. 5 219	Superphosphate — Amsterdam, 1 t. 13 c. £10	Campana, 5 6	Copperas — Almeria, 10 t. 4 c. £16
Hobart, 5 18	Tartar Salts — Lisbon, 11 c. £12	Calcium Chloride — New York, 10 t. 2 c. £20	Varna, 2 13 3 q. 6
Melbourne, 2 141	Tartaric Acid — B. Ayres, 1 t. 10 c. £141	Caoutchouc — Rio de Janeiro, 2 cs. 1	Kurrachee, 15 22
Brisbane, 1 10 104	Manure — Demerara, 1 t. 5 c. £15	Carbolic Acid — Hamburg, 6 c. £28	Calcutta, 25 1 50
Maryboro, 5 17	Lisbon, 32 9 225	Genoa, 1 t. 8 71	Copper Sulphate — Tampico, 37 t. 10 c. £160
Yokohama, 5 19	Cape Town, 75 31	Syra, 1 18 60	Nantes, 63 2 1 q. 935
Disinfectants — Sydney, 21 cs. £58	Guano — Bordeaux, 22 t. 5 c. £220	Hong Kong, 11 1 q. 8	Halifax, 1 2 25
Montreal, 8 pkgs. 23	Hypophosphite of Lime — New York, 7 c. £124	Castor Oil — Boston, 45 brls. 1	Copenhagen, 1 10 7
Natal, 11 20	Manure — Demerara, 1 t. 5 c. £15	Caustic Potash — New York, 14 t. 5 c. £361	Stettin, 1 17 25
Algoa Bay, 2 cs. 2 c. 31	Lisbon, 32 9 225	Philadelphia, 1 4 2 q. 29	Adelaide, 10 2 142
B. Ayres, 46 pkgs. 41	Cape Town, 75 31	Caustic Soda — Bahia, 350 dms. 1	San Francisco, 10 12 145
Madras, 101 76	Guano — Bordeaux, 22 t. 5 c. £220	Barcelona, 115 20 cks. 1	Cream of Tartar — Bahia, 1 t. 1 c. £4
Guano — Bordeaux, 22 t. 5 c. £220	Hypophosphite of Lime — New York, 7 c. £124	Boston, 212 13 bxs. 165 brls. 1	St. John's, N.B., 2 t. 10 167
Manure — Demerara, 1 t. 5 c. £15	Manure — Demerara, 1 t. 5 c. £15	B. Ayres, 20 22 cks. 1	Toronto, 1 67
Lisbon, 32 9 225	Lisbon, 32 9 225	Cartagena, 25 22 cks. 1	Vera Cruz, 2 8
Cape Town, 75 31	Lisbon, 32 9 225	Catania, 10 10 1	Portland, M., 11 35
Jersey, 100 436	Lisbon, 32 9 225	Galatz, 414 50	Boston, 5 10 315
Penang, 862 10 7,300	Lisbon, 32 9 225	Havana, 50 50	Disinfectants — Bombay, 2 t. 15 c. £14
Singapore, 44 13 39	Lisbon, 32 9 225	Helsingfors, 112 112	Farina — Rio de Janeiro, 9 brls. 1
	Lisbon, 32 9 225	Malta, 42 42	Guano — Santos, 1 t. £8
	Lisbon, 32 9 225	Manila, 175 175	Gypsum — New York, 35 t. 5 c. £45
	Lisbon, 32 9 225	Marseilles, 100 100	
	Lisbon, 32 9 225	Messina, 35 35	
	Lisbon, 32 9 225	Naples, 83 83	
	Lisbon, 32 9 225	Newport News, 110 bxs. 10	

LIVERPOOL.

Week ending November 21st.

Alum — Melbourne, 2 t. £14	Alum — Melbourne, 2 t. £14
Varna, 4 8 c. 2 q. 20	Varna, 4 8 c. 2 q. 20
B. Ayres, 7 11 2 34	B. Ayres, 7 11 2 34
Mersyne, 1 5 6	Mersyne, 1 5 6
Calcutta, 66 4 1 322	Calcutta, 66 4 1 322

Chemicals (otherwise undescribed)

Alexandria,	132 cks.	
Bremen,	7	
Christiania,	3	50 pkgs. 1,021 slbs.
Copenhagen,	10	
Danzig,	61	54 2 cs. 4 bls.
Gothenburg,	69	25 5
Hamburg,	28	531 8 kgs.
Helsingfors,	1	
Konigsberg,	5	
New York,	4	
Rotterdam,	18	10 50
Stettin,	45	10 bls.
St. Petersburg,	2	20
Wass,	28	

Cottonseed Oil—

Alexandria,	227 c.
Antwerp,	100
Bremen,	100
Gothenburg,	50
Hamburg,	859
Konigsberg,	150
Norikoping,	17
Rotterdam,	1,575
Stettin,	932

Dyestuffs (otherwise undescribed)

Boston,	9 cks.
Christiania,	100 bgs.
New York,	2
St. Petersburg,	40

Linseed Oil—

Alexandria,	116 c.
Bordeaux,	36
Boston,	21
Christiansand,	52
Christiania,	298
Drontheim,	170
Gothenburg,	203
Hamburg,	505
Rotterdam,	147
Stavanger,	41

Mineral White—

Gothenburg,	41 ingots.
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Paint—

Alexandria,	18 cks.
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Painters' Colours—

Amsterdam,	2 cs.
Antwerp,	3 cks. 3 2 pkgs.
Christiania,	20 blms.
Copenhagen,	4 2
Danzig,	20 3
Ghent,	36 2
Gothenburg,	1
Hamburg,	46 13
New York,	47
Rotterdam,	2 1 pkge
Stettin,	10
St. Petersburg,	30

Phosphorus—

Antwerp,	20 cs.
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Pitch—

Copenhagen,	25 t.
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Soap—

Gothenburg,	12 cs.
Helsingfors,	25 2 bls

Tallow—

Alexandria,	3 cks.
Rotterdam,	27 tcs.

Tar—

Danzig,	2 cks.
Helsingfors,	10
Rotterdam,	17
Stettin,	5

Yarnish—

Amsterdam,	2 cs.
Copenhagen,	4 cks.
Hamburg,	4

GLASGOW.

Week ending November 22nd.

Ammonium Sulphate—

New York,	15 t.	£155. 12s.
Philadelphia,	50 12½ c.	£633.
Hamburg,	35 10	476
Demerara,	599 7	7,759

Asbest.—

Cape Colony,	5 c.	£50
Trinidad,	12 ½	£22 12s.
Japan,	1 t.	£185

Bleaching Powder—

New York,	6 t. 10 c.	£52
Brisbane,	5 18½	45
Melbourne,	18 5½	133

Borax—

Russia,	2 t. 3½ c.	£45
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Carbonic Acid—

Rotterdam,	11 tubes.	£38
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Castor Oil—

Cape Colony,	1 t.	£21. 10s.
Adelaide,	73 gls.	£20

Chemicals (otherwise undescribed)

Melbourne,	2 t. 10½ c.	£29. 15s.
Trinidad,	4 1	£70

Coal Products—

Pitch		
New York,	76 t. 12 c.	£ 07
Tar		
New York,	55 t. 18 c.	£115
Russia,	22 10	40
Hamburg,	174 bls.	78
Tar Oil		
Hamburg,	2 dms. 25 cks.	£184

Coal Tar Products (otherwise undescribed)

Rotterdam,	29 dms.	£280
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Copper Sulphate—

Bordeaux,	17 t. 11½ c.	£252
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Dyestuffs—**Extracts**

Halifax,	4 t. 10½ c.	£113
Melbourne,	8 14½	292
Boston,	2 5	63

Logwood

Lisbon,	14 t. 5 c.	£113
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Patent Indigo

Melbourne	1 t. 4 c.	£46
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Dyestuffs (otherwise undescribed)

New York,	14 c.	£37
Lisbon,	11 t. 13	53
Melbourne,		65

Glucose—

New York,	373 gls.	£86
Brisbane,	10 c.	24

Iodine—

Rotterdam,	1 ck.	£325
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Linseed Oil—

Cape Colony,	16½ c.	£25
N. S. Wales,	2 t. 5	£50. 13s.
Halifax,	1	£20
Trinidad,	770 gls.	£70 11s.
Demerara,	3 t. 10½ c.	£151
Melbourne,	1 5	23

Magnesium Sulphate—

N. S. Wales,	3 t.	£21. 18s.
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Manganese Oxide—

New York,	9 t. 19 c.	£95
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Manure—

Demerara,	5 t.	£50
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Paint—

Cape Colony,		£60
Natal,		95
N. S. Wales,	6 t. 16 c.	137
Straits,		65
Cape Colony,	1 9	£32. 17s.
Adelaide,		£160
Sydney,		150
Demerara,		180
Penang,		204
Hong Kong,		132
		61

Painters' Colours—

New York,		£113
N. S. Wales,		84
Bombay,		37
Trinidad,		210
Penang,		30
Shanghai,		216
Hong Kong,		£65 10s.
Amsterdam,	4 kgs.	£5

Paraffin Wax—

Cape Colony,	12 t. 11½ c.	£320
Japan,	5 4	104
Constantinople,	8 13½	255
Russia,	4 19½	100
Bilbao,	3 7½	94
Bordeaux,	1 15½	49
Antwerp,	1 7½	49
Cape Colony,	6,720 lbs.	93
Amsterdam,	9 t. 5	195

Phosphates—

Trinidad,	5 t. 9½ c.	£92
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Potassium Bichromate—

Bombay,	1 t. 1½ c.	£43
Philadelphia,	10 8	413
Rouen,	24 5½	964
Lisbon,	7 1½	282
Antwerp,	5 17½	232
Melbourne,	2 17½	153

Potassium Prussiate—

Rouen,	5 t. 6½ c.	£343. 15s.
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Salt—

Trinidad,	38 t. 7½ c.	£92
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Slag—

Rotterdam,	642 t.	£119
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Soap—

Bombay,	3 t. 4 c.	£34
Trinidad,	6 16½	£86. 10s.

Soda Ash—

Philadelphia,	25 t.	£56
New York,	15 1 c.	56

Sodium Arsenate—

Lisbon,	1 t. 12 c.	£20
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Sodium Bichromate—

Rouen,	1 t. 12 c.	£53
Lisbon,	3 2½	101
Antwerp,	4 5	140

Stannous Chloride—

Demerara,	9 t. 5 c.	£68. 10s.
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Sulphur—

Demerara,	4 t. 5½ c.	£20
Trinidad,	22 14½	116

Tallow—

Trinidad,	4 t. 3½ c.	£100. 10s.
Rotterdam,	3 16	100

Tin Salts—

Trinidad,	13½ c.	£34
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Yarnish—

Sydney,	3 c.	£79. 10s.
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White Lead—

Cape Colony,	12 t. 9½ c.	£300
N. S. Wales,	15 19½	313
Brisbane,	2 2½	41
Melbourne,	3	67

TYNE.

Week ending November 17th.

Alkali—

Lisbon,	5 t.	
Rotterdam,	9 2 c.	
Hamburg,	2 3	
Riga,	32 14	
Gothenburg,	5 19	

Aluminous Cake—

Nykjobing,	15 t.	
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Ammonia—

Rotterdam,	1 t. 2 c.	
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Antimony—

Copenhagen,	6 c.	
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Arsenic—

Christiania,	2 t. 1 c.	
Genoa,	4 7	
Gothenburg,	1 6	

Barium Binocide—

Dunkirk,	5 t. 4 c.	
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Barytes—

Hamburg,	125 t.	
New York,	45	

Bleaching Powder—

Abo,	157 t. 8 c.	
Lisbon,	5 1	
Rotterdam,	52 3	
Antwerp,	25 19	
Hamburg,	70 10	
Christiania,	9 19	
Bergen,	7 7	
Harlingen,	25 3	
Riga,	50 6	
New York,	50 5	
Gothenburg,	19 19	
Drontheim,	10 3	

Caustic Soda—

Abo,	89 t. 14 c.	
Antwerp,	6 11	
Hamburg,	12 15	
Riga,	15 1	
Genoa,	25 4	
New York,	172 19	
Algiers,	11 5	
Seville,	27 6	
Copenhagen,	3 3	
Gothenburg,	65 3	

Copperas—

Copenhagen,	2 t. 2 c.	
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Iron Oxide—

Hamburg,	15 t. 6 c.	
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Lime—

New York,	5 t.	
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Litharge—

Abo,		6 c.
Hamburg,	1 t. 19	
Riga,	7 14	
Copenhagen,	1 15	

Magnesia—

Antwerp,		2 c.
Hamburg,		7
Smyrna,	1 t. 18	
New York,		4

Manganese—

Civita Vecchia,	16 t. 2 c.	
Bilbao,	52 12	

Manure—

Valencia,	345 t. 10 c.	
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Naphthaline—

Antwerp,	2 bgs.	
Riga,	20 t. 6 c.	

Paint—

Abo,		2 c.
Antwerp,	1 t. 17	

Genoa,

Genoa,	3 10	
New York,	7	

Paraffin Wax—

Abo,	2 t. 12 c.	
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Pitch—

Antwerp,	1 ck.	
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Salammoniac—

Gothenburg,	1 t. 1 c.	
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Slag—

Rotterdam,	584 t.	
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Soda—

Christiania,	8	16
Stavanger,	2	13
Smyrna,	113	19
New York,	216	4
Algiers,	15	4
Göthenburg,	24	2
Ghent,		10
Drontheim.	0	17

PRICES CURRENT.

WEDNESDAY, NOV. 28th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/9
" Glacial	"	50/-		
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3 1/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 1/4
Nitrous	"	0	0	1 1/4
Oxalic	nett	0	0	3 1/4
Phosphoric, 1750°	"	0	0	11
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	"	0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)	"	4	17	6
Alumina Sulphate (pure)	"	5	0	0
Aluminoferic	"	2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	4
" 880=28° B.	per lb.	0	0	3
" =24° B.	"	0	0	2 1/4
" Carbonate	nett	0	0	3 1/4
" Muriate	per ton	23	10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
" Nitrate	per ton	41	0	0
" Phosphate	per lb.	0	0	10 1/4
" Sulphate (grey) London	per ton	11	15	0
" (grey) Hull	"	11	13	9
Aniline Oil (pure)	per lb.	0	0	5 1/4
Aniline Salt	"	0	0	5 1/4
Antimony	per ton	33	10	0
" (tartar emetic)	per lb.	0	0	9 1/4
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	10	0
" Carbonate (native)	"	3	7	6
" Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35 %	nett	7	5	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	5	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	5	0
China Clay (at Runcorn) in bulk	"	17/6	to	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90 % nominal	per gallon	0	1	1 1/2
" 50/90	"	0	1	2
Carbolic Acid (crystallised 40°)	per lb.	0	0	5 1/4
" (crude 60°)	per gallon	0	1	6
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2 1/4
Crude Naphtha 30 % @ 120° C.	"	0	0	5
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	13	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	1
Lucigen and "Wells Oils	"	0	0	2 1/2
Copper	per ton	39	13	9
" Sulphate	"	14	10	0
" Oxide (copper scales)	"	39	0	0
Glycerine (crude)	"	15	0	0
" (distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	10	17	6
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white)	"	25	0	0
" brown	"	15	10	0
" Carbonate (white lead) pure	"	16	0	0
" Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	6	7	6
" (grey)	"	10	0	0
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton	17	0	0
" Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	"	17	15	0
" Borate	per cwt.	2	15	0
" Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	1	10
Naphtha (Wood), Solvent	"	0	3	0
" Miscible, 60° O.P.	"	0	3	6
Oils:—				
Cotton-seed	per on	19	5	0
Linseed	"	21	10	0
Petroleum, American	per gallon	0	0	5 1/4
Stearine	per ton	26	0	0
Phosphorus (yellow)	per lb.	0	2	1
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4 1/4
" Carbonate, 90% (ex ship)	per ton	16	15	0
" Chlorate	per lb.	0	0	5 1/2
" Cyanide, 98%	"	0	2	2
" Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0
" (Caustic Potash) 75/80 %	"	20	0	0
" (Caustic Potash) 70/75 %	"	19	10	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	2	6
" Prussiate Yellow	per lb.	0	0	10 1/4
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	4 1/2
" Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
" (Caustic Soda-ash) 48 %	"	4	0	0
" (Carb. Soda-ash) 48 %	"	4	0	0
" (Alkali) 58 %	"	3	15	0
" (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	14	5	0
" Arseniate, 45 %	"	11	0	0
" Chlorate	per lb.	0	0	7 1/4
" Borate (Borax)	net, per ton	20	0	0
" Bichromate	per lb.	0	0	3 1/4
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	"	10	7	6
" (74 % Caustic Soda)	"	9	7	6
" (70 % Caustic Soda)	"	8	7	6
" (60 % Caustic Soda)	"	7	7	6
" (60 % Caustic Soda, cream) (f.o.b.)	"	7	5	0
" Bicarbonate	"	5	12	6
" Hyposulphite	"	5	10	0
" Manganate, 30 %	"	16	0	0
" Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8	9
" Nitrite, 98 %	per ton	29	0	0
" Phosphate	"	15	0	0
" Silicate (glass)	per ton	5	2	6
" (liquid, 100° Tw.)	"	4	5	0
" Stannate, 40 %	per cwt.	3	2	9
" Sulphate (Salt-cake)	per ton	0	17	6
" (Glauber's Salts)	"	1	5	0
" Sulphide	"	8	10	0
" Sulphite	"	5	7	6
Strontium Hydrate, 100 %	"	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7
" Barium, 95 %	"	0	0	5
" Potassium	"	0	0	7 1/2
Sulphur (Flowers)	per ton	7	5	0
" (Roll Brimstone)	"	5	5	0
" Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26 %)	"	2	7	6
Tallow	"	24	10	0
Tin Crystals	per lb.	0	0	6
" English Ingots	"	66	10	0
Zinc (Spelter)	per ton	14	6	3
" Chloride (solution, 100° Tw.)	"	5	7	6

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Notices.

ON JANUARY 19TH, 1895, OUR
ANNUAL SPECIAL ISSUE

Will Appear as Usual.

THIS DOUBLE NUMBER will, in addition to the ordinary features of the *Journal*, contain

ORIGINAL ARTICLES

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CURRENT TOPICS.

THE SEWAGE OF THE METROPOLIS.

IT would seem that it is not only history that repeats
itself, for the authorities who busy themselves with the
treatment of the sewage of London appear to be prone to do
the same.

After a faithful allegiance for a long time to manganate of
soda, it is stated, as the result of further experiments, that
there is a prospect of reliance once more being placed solely
upon ferrous sulphate and lime. The experiments have been
so far successful that it is now proposed to try treating the
whole of the sewage. It will be most interesting to learn
the result of the large trial, if it is actually made. The results
of somewhat similar treatment at Salford are already known,
and as it is highly probable that the sewage of the Metro-
politan is of a more constant composition than that of Salford,
it is not altogether improbable that very satisfactory results
may be obtained.

Unfortunately, even then we shall be about as far off a
solution of the sewage problem as ever. What does for
London will not necessarily do for everywhere else. And,
moreover, it is a lamentable fact that in a good many
instances, where the treatment proved to give good results,
the requisite quantities of chemicals would not be put in for
many weeks together. In a month or so the dose would be
gradually lessened, to the detriment of the effluent, until the
sewage began to appear no better after treatment than
before, and so discredit is brought upon the process
employed.

However, should good results be obtained this time with
the London sewage, we hope and trust the County Council
will publish their experiments, giving analyses of the raw
sewage and the effluents, in conjunction with the other neces-
sary particulars. In the event of satisfactory results, this
would be most helpful information to those who are
endeavouring to enforce the River Pollution Acts,
as it would enable them to drop on local authori-
ties who were killing time under pretext of getting
schemes sanctioned by the Local Government Board.
This, of course, would be accomplished by getting an
analysis of the average sewage which required treatment,
comparing the same with London sewage, and, providing
there was a reasonable similitude, insisting on the adoption
of a process which had been proved in practical working to
be adequate for the treatment of that class of sewage. Such
a method would remove much responsibility from the
shoulders of those who administered the Acts, though there
is no knowing whether the Local Government Board would
not find some objection, and so make another hole in the
net which it is necessary to draw round local authorities
before they will give up playing with their sewage and take
to treating it efficiently.

THE SUPPLY OF NITRATE.

A straw will show the direction of the wind, and in the same way, occasionally, a stray statement throws light upon an apparently irrelevant matter. We have sounded a note of warning once or twice lately about the effects of a largely-increased production of nitrate of soda. The consumption, it is constantly averred, is growing rapidly; but the production is also doing so very rapidly, and gives promise of continuing to. A glance at the imports of nitrate shows that the shipments have been heavy, especially in the first six months of the year. The shipments in November, also, were close on four times as large as in November, 1893, the actual figures being 3,689 tons in last year, and 13,019 this year.

With regard to the prospect of the present production being maintained, the movements of the directors of the Nitrate Railways afford a clue. The position of the Railways has been the subject of much discussion lately, but the prospects of large traffic receipts in 1895 are so favourable, that the directors will in all probability entirely divide their present profits as dividends. The traffic is looked for in the large quantities of nitrate expected from the Lagunas and Buenaventura *officinas*, to say nothing of the new San Patricio Company.

It is not likely that the directors would take such an important step unless their expectations were well founded, and for this reason there seems to be just cause for anticipating something like a surfeit of nitrate in the early months of next year. The effect on prices has, of course, yet to be seen.

A MOVE IN THE RIGHT DIRECTION.

Considering the opprobrium of smoke prosecutions and their attendant worries, it is quite a relief to learn that in the Metropolis serious air polluters, other than manufacturers, have begun to receive attention. A large hotel company, which has for long been causing a nuisance with black smoke, has during the past week been fined £5. with costs, which amounted to three guineas. The plea that the company had done the best they could to prevent the emission of smoke did not avail much. They were met with the answer that manufacturers are so familiar with. No matter what you have done, the smoke still escapes, and it will have to be stopped. It is all very well to take up such a position, but it cannot be gainsaid that there are conditions under which the production of a certain amount of black smoke is unavoidable. It is satisfactory to know that this aspect of the matter has been taken up in Manchester by the Chemical Sectional Committee of the Chamber of Commerce, and that a deputation is to wait upon the Corporation to represent this point as clearly and forcibly as possible.

Because there are circumstances under which emission of black smoke is at times almost unavoidable, it does not follow that careless offenders must be treated more leniently than heretofore. The idea rather is to enforce the fact that the time has come when rational, as opposed to arbitrary, methods should be pursued in connection with smoke prosecutions. It is high time some distinction was made between works and dwellings from which no black smoke should escape, and those industries in which the absolute annihilation of black smoke is not feasible, without imposing undue restrictions on the trades concerned. When this step has been achieved, it is to be hoped that the inspectors will benefit by the additional information which will then be available for their help and guidance.

THE INEQUALITIES OF FOOD ADULTERATION PENALTIES.

Members of the Provincial Bench will do well to take note of what their brother magistrates are doing in London to

support the administrators of the Food and Drugs Act. Where palpable cases of adulteration are proven, they are beginning to impose fines which are sufficiently heavy to constitute genuine penalties. By so doing they will put a stop to adulteration being practised as a lucrative speculation because the additional profit thereby earned amply justifies any incidental expenses which may be incurred, in the shape of fines, in the event of a conviction being obtained. Last week two sellers of salad oil containing 77 to 80 per cent. of cottonseed and other oils were fined £16. and £15. respectively, with costs. Another metropolitan dealer was fined £20. and costs for selling margarine as butter.

In a strikingly similar, though perhaps more aggravated case recently heard at St. Helens, a fine was imposed which borders on the ridiculous. The summons was laid for selling "butter" containing 85 per cent. of foreign fats. This, moreover, was being done by the manager of the shop without the knowledge and, presumably, without the consent of the proprietor. In spite of the seriousness of the adulteration and the additional implicating circumstances, a fine of 10s., with costs to the same amount, was imposed. What proportion did the fine bear to the profits which the vendor had made by his fraud? No inquiry appears to be made in this direction in order to ascertain how long the substitution of margarine for butter had been practised. With such fines in cases of so serious a nature, it is not a matter for great surprise that adulteration still assumes formidable proportions.

EXPORTS OF PETROLEUM FROM U.S.A.

THE Chief of the Bureau of Statistics, Washington, gives the following returns of the exports of petroleum and petroleum products for October, 1894. The total shipments were 83,853,309 gallons, compared with 79,921,733 gallons in October, 1893. The total for the ten months ending October 31, 1894, was 734,824,909 gallons, against 724,226,131 during the same period in 1893. The details of the shipments are as follows:—

CRUDE PETROLEUM.			Gallons
Total October, 1894	..	..	11,224,987
" " 1893	..	..	10,006,629
NAPHTHAS.			
Total October, 1894	..	..	2,400,529
" " 1893	..	..	2,036,236
ILLUMINATING.			
Total October, 1894	..	..	66,790,364
" " 1893	..	..	64,493,439
LUBRICATING AND PARAFFIN.			
Total October, 1894	..	..	3,434,995
" " 1893	..	..	3,384,385
RESIDUUM.			
Total October, 1894	..	..	2,436
" " 1893	..	..	1,050

THE GERMAN CEMENT TRADE.

THERE are upwards of 63 cement works in Germany. The year's output is about 10,600,000 barrels, and in the production of this quantity of cement 18,000 workmen were employed in 1893, occupying 5,500,000 working days, and earning 14,250,000 marks in wages.

Near Hamburg there are three or four factories for the production of this article, but the centre of the production is on the Rhine. The largest customers for cement are the United States, Brazil, Chile, and Venezuela, and in Europe, Norway, and Russia, as follows, quantity in cwt. and value in pounds.

Country.	Quantity.	Value.
United States	1,386,872	168,023
Brazil	446,338	40,280
Chile	131,067	13,102
Venezuela	102,994	9,736
Norway	58,356	6,709
Russia	34,353	2,941

The importation to Great Britain was insignificant, but British possessions such as Australia, the Cape, and British East India took 123,666 cwt., valued at £12,247.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

(Before the Master of the Rolls and Lords Justices Lopes and Rigby.)

TOWSON v. BOWNESS LOCAL BOARD.

This was the appeal of the defendant Board from the decision of Mr. Justice Collins, delivered at Manchester (*C.T.J.* 375 p. 48), in which he gave judgment for plaintiff, and restrained the Board from continuing to pollute the Lake Windermere with sewage. During the course of the argument which was heard on Tuesday, Mr. Ambrose, Q.C., for the Board, stated that every large body of water that had slopes running towards its banks was contaminated by the drainage from the land.—The Master of the Rolls: You had better go and tell the Manchester people that Thirlmere Lake is not fit for use.—Mr. Ambrose: Thirlmere is different to Windermere. They could not use Thirlmere water if it was dealt with like that of Windermere.—After further argument their lordships held that the Judge below was quite right in finding that the plaintiff, Mr. Ben Townson, was the riparian proprietor, and was aggrieved by the pollution of the sewage being discharged into the lake, and dismissed the appeal with costs.

HIGH COURT OF JUSTICE.

CHANCERY DIVISION.

(Before Mr. Justice Romer.)

SMITH v. WALLACE.

In this case the plaintiff agreed to purchase, and the defendant to sell, certain cement works in Kent for £13,500. The agreement was made in January, 1894, and provided that the purchaser should forthwith pay a deposit of £1,350. It also contained (in clause 3) what is now a very common provision in agreements for sale—viz., that if the purchaser should take any objection or make any requisition which the vendor should be unable or unwilling to remove or comply with, and should not withdraw the same within seven days after being required so to do, the vendor might by notice in writing, and notwithstanding any intermediate negotiation, rescind the agreement. The time fixed for completion of the purchase was March 24th, 1894. The purchaser had made certain requisitions of a serious nature, when the defendant's solicitors wrote to the plaintiff's solicitors giving formal notice under clause 3 that the defendant was unwilling to remove or comply with, and calling upon the purchaser to withdraw his requisitions. On March 9th a reply was sent refusing to withdraw the requisitions, and at the expiration of the seven days the vendor was therefore in a position to rescind the contract. His solicitors, however, delayed informing the purchaser whether the contract was to go on or not, and proceeded to negotiate with another person for a sale to him of the same property—his Lordship holding that it was intended on behalf of the vendor, if he could effect such contract, to rescind the contract with the plaintiff, and (his Lordship feared), if the new contract could not be made, to hold the plaintiff to his contract. The plaintiff was unaware of the fresh negotiations, but he objected to being trifled with, and on March 15th he wrote asking whether the vendor was going to rescind or not, and, if not, requiring him to proceed with the requisitions. As early as March 9th the negotiations with the alternative purchaser had been commenced. On March 15th the vendor's solicitors sent a draft contract to such alternative purchaser, and on the same day they replied to the plaintiff's solicitors asking for a delay to the end of the week. Other letters followed, the vendor's solicitors, in fact, playing fast and loose with those of the plaintiff until March 19th, when the latter wrote rescinding the contract and asking for a return of the deposit. Even then the vendor's solicitors delayed, and on the 21st the plaintiff's solicitors wrote that they must issue a writ. This followed in due course, and the plaintiff claimed rescission of the contract and a return of the deposit. Further dilatory letters followed, and after the writ had been issued the vendor's solicitors attempted to treat the contract with the plaintiff as binding. In the action the vendor counter-claimed for specific performance.

Mr. Justice Romer held that the plaintiff when he issued his writ was entitled to treat the contract as rescinded and to have his deposit returned to him. The power of the vendor to rescind was a powerful weapon in his hands, and he was bound to exercise the rights given him by clause 3 fairly, and to determine promptly whether he would exercise the power or not. He was not entitled to take advantage of his position and to leave the purchaser in ignorance whether the contract was to be treated as rescinded or not. He certainly was not entitled intentionally to delay deciding whether the contract was to be gone on with or not, and still less was he entitled to use that delay for his own purpose in trying to effect another and more beneficial contract for the sale of the property to a third person. It was unnecessary to point out the hardship on the purchaser of allowing the vendor to play

fast and loose with him in such a manner. The purchaser would not know whether he was to get ready for completion, or not, whether his requisitions were to be further answered, or how they were to be dealt with, or what step he should take, and this at a time when the day fixed for completion was close at hand, and he might be held liable under the contract to pay interest on his purchase-money if the contract was not completed on the day fixed. The deposit must be returned, with interest from the date of the writ. The counterclaim would be dismissed, and the defendant must pay the costs of the action and counterclaim.

THE COMPARATIVE WORKING OF COKE OVENS.—According to the report of Mr. Farrell, an American furnace engineer, who spent three months in Europe last year investigating the different coking systems, and who had access to the records of all leading oven builders, the following is a comparison of results in by-products, as accomplished by ovens of the different models working on similar grades of Westphalian coal:—

Names.	Period.	Tar.	Sulphate of Ammonia.
		Per Cent.	Per Cent.
Semet-Solvay	October 1892 to March 1893..	1'6	0'61
Carvès-Hüessner	October 1892 to Feby. 1893..	1'81	2
Otto Hoffman	October 1892 to March 1893..	3'53	1'18

DECISION OF IMPORTANCE TO SALTMAKERS.—A short time since his honour Judge Wynne Ffoulkes was occupied at the Winsford County Court in hearing an important action brought by Samuel Vernon, of the flat Violet, against the Messrs. Blagg and Richen, of Winsford, saltmakers, for detention of his flat. It appears that on the 13th August last the plaintiff agreed with the defendants to load a cargo of salt and convey the same to a destination to be ordered by them. The loading was completed on the 14th August, and the plaintiff moved down to Northwich to await defendants' orders. Notwithstanding, however, repeated applications, orders were not given until the 4th October, and the plaintiff was not finally discharged until the 8th October, a delay of 55 days. The defendants contended that the plaintiff had loaded at his own risk, and that such a claim as the plaintiff now set up was unheard of. The Judge decided that the defendants were bound to give orders within a reasonable time, that the time above mentioned was altogether unreasonable, and assessed the plaintiff's damages at £15. Judgment accordingly, with costs.

INSANITARY CHURCHES.—One is naturally inclined to think that the question why people don't go to church has been discussed until it is threadbare, but the *Sanitary Engineer* has contrived to give a new turn to it. Instead of guessing why people don't go, our contemporary suggests a practical and powerful reason why they shouldn't go. On its showing the church-goer is encompassed by dangers. He may contract some deadly disease, and fall a victim to the insanitary condition of the building. An alarming example of the latter peril was recently furnished by a church in the Paddington district. It was discovered that in the cellar under the sacred edifice there were two pipes that went direct into the public sewer without the intervention of any trap whatever; and, as the bellows of the organ were situated in this cellar, every time the instrument was played the contaminated air was drawn up and blown out into the body of the church. As the *Sanitary Engineer* says, "music tempered with sewer gas was on tap for the devotees of this church several times per week." Clearly a sanitary inspector's certificate as to the state of the building ought to be amongst the notices on church doors.

THE ASSESSMENT OF THE RIVER WEAVER.—The decision of the House of Lords in the rating case of *The Manchester, Sheffield, and Lincolnshire Railway v. The Doncaster Union* has affected the ratability of the property of the River Weaver Trustees in an extraordinary degree. The river passes through 16 townships within the jurisdiction of the Northwich Rural Sanitary Authority, and against the assessment of the stream in the whole of these the Trustees have successfully appealed, the case being on all fours with that mentioned in which the House of Lords decided that, notwithstanding improvements involving a considerable expenditure of capital, and the widening of the stream or the addition of towing paths, the original bed of the river was not ratable to the poor-rate. The Assessment Committee of the Northwich Union, in the face of this decision, had no alternative but to reduce the assessment, though there was a strong expression of opinion that in cases where the Trustees had taken agricultural land for the purpose of widening the stream the new portion of the bed ought to be rated. The effect of this alteration is to diminish the ratable value of the Weaver in the Northwich Union to the extent of £9,046, or from £15,894 to £6,848.

THE MERSEY AND IRWELL JOINT COMMITTEE.

THE usual monthly meeting of this Committee was held on Monday last, at the offices, Mosley-street, Manchester. Alderman J. Thompson presiding.

The Chief Inspector (Mr. R. A. Tatton) in his report stated in connection with the position of manufacturers:—

The cases of seven manufacturers come up for consideration this month, and are dealt with in the Chemical Sub-Committee's Report.

Amongst these is the case of Mr. R. Hamilton, of Birchlee Mill, Royton, who, after the Committee had resolved to apply to the Local Government Board, wrote to the effect that he would undertake to discontinue his business as waste bleacher if the Committee would adjourn the proceedings within that period. Since that date, Mr. Hamilton has given up waste bleaching, which caused a serious pollution, and has taken to wadding dyeing instead. The quantity of the waste discharged is consequently much reduced, and it is possible that the small tanks which Mr. Hamilton has already constructed will be sufficient to deal with it. No effluent was passing when the Inspector was at the works, on the 13th ult., as the tanks were filling, but a sample will require taking and submitting for analysis.

THE REPORT OF THE CONSULTING SUB-COMMITTEE

was presented by Mr. Killick. In four cases an extension of time for three months was granted. Two months were granted to Chapel-en-le-Frith R. S. A. and Glossop R. S. A. Seven other local authorities were given one month. The Clerk was instructed to write Royton and point out that the effluent was bad, and also to the Holt Town works of the Manchester Corporation complaining of the nature of the effluent and asking for an abatement of the nuisance. The Swinton and Pendlebury Local Board were granted one month to submit their improved scheme (C. T. J. 393, p. 338) to the Local Government Board. Most of the extensions of time were granted, to allow answers to be received from the Local Government Board.

The orders of Court which have been obtained against the following Authorities have expired:—Whitworth Local Board, Dukinfield Local Board, Ashton-under-Lyne Corporation, Stalybridge Corporation, and Bury Corporation, and recommendations as to further proceedings will be submitted at the next meeting.

Seeing that several Authorities are at a standstill, pending the sanction of the Local Government Board to their schemes, it was decided, on the motion of Mr. V. K. Armitage, to communicate to the Board the importance of pushing on with these schemes, so that they could be in operation before the warm weather came again.

A deputation attended from the Littleborough Dyeing Company to show cause why proceedings should not be taken. The firm have provided tanks, but they are not large enough to deal with their waste, which is very large in quantity and very foul. The works are the highest works on the Roach, into which a large number of works drain which have purification plant in operation, and if it were not for the Littleborough Dyeing Company this length of the river would be practically clear. It was necessary, therefore, that the Committee should insist upon a good effluent being turned out from these works.

It was explained that the effluent was taken when the tanks wanted cleaning. An undertaking was given to effectually purify the effluent in two months.

Messrs. Heaver Bros., brewers, at Bollington, also attended. They have a small tank in operation, but the samples which have been taken on various occasions show that it is quite inadequate to deal with their waste waters.

After some discussion as to the adequacy of the new tank they proposed to put down, an undertaking was given to turn out a suitable effluent in two months.

REPORT OF THE CHEMICAL SUB-COMMITTEE.

This report was presented by Mr. C. H. Nevill, and the recommendations adopted as below.

S. Knowles and Co., Tottington.—The works which have been constructed by this firm are not yet giving satisfactory results, but considering that they have recently made some progress in the matter, they recommend that the consideration of the firm's position be adjourned on condition that they continue to make further improvement.

R. Bealey and Co., Radcliffe.—A large staff of men is now engaged at these works and making good progress. Your Sub-Committee therefore recommend that the consideration of the firm's position be adjourned.

S. Ashworth and Son, Rochdale.—Your Sub-Committee recommend that the consideration of the position of this firm be adjourned for one month to enable the Chief Inspector to report further upon the condition of their effluent.

Rochdale Wool Scouring Company.—Good progress is also being made at these works, and your Sub-Committee recommend that the consideration of the matter be adjourned.

Edmund Potter and Co., Limited, Dinting Vale.—This firm appear to have had much difficulty in acquiring suitable land for purification works, and are now trying to arrange terms with the Glossop Corporation to treat their effluent at the Corporation Sewage Works. Your Sub-Committee have considered a letter which has been received from the Town Clerk of Glossop upon the subject, stating that his Corporation are awaiting a report from Mr. Carter Bell, and when this is received will decide what course to take. As the firm appear to be making bona-fide efforts to comply with the Joint Committee's requirements, your Sub-Committee recommend that the consideration of the matter be adjourned for one month, and that the Clerk be instructed to communicate with Messrs. Potter and the Town Clerk, stating that the Joint Committee hope they will have come to a satisfactory arrangement at the expiration of that period.

Jas. Schofield and Sons.—This firm are now carrying out works, and the Sub-Committee recommend that they be allowed one month's further time; and that the Clerk be instructed to write and inform them that they must make good progress during the extended time allowed them.

S. Schwabe and Co., Printers and Dyers, Rhodes Works, Middleton.—Your Sub-Committee do not consider that this firm has made satisfactory progress in constructing works to deal with their effluent, and as they have not received notice from the Joint Committee to show cause why proceedings should not be taken against them, your Sub-Committee recommend that a notice be now served upon them inviting them to appear before the January meeting of the Joint Committee.

Your Sub-committee have further to recommend that a circular letter be sent by the Chief Inspector to those manufacturers in the watershed who are not proceeding with their purification works with due diligence, informing them that unless they make much better progress the Joint Committee will bring their cases before the Local Government Board.

According to Sir Henry Roscoe's report, 22 samples of manufacturing effluents have been examined, of which three were satisfactory. Out of 16 samples of sewage eight were good, three passable, and five bad. It was reported that the district auditor had surcharged Mr. Alderman Thompson and Mr. Killick for the sum of £21. paid to Sir Henry Roscoe, chemist to the Committee, for hotel and other expenses. The Local Government Board had been communicated with, but all that that Board had done was to knock off one-half of the amount of the surcharge. Both Mr. Thompson and Mr. Killick said that they would not pay the other half unless they were compelled to. Mr. Armitage expressed a hope that Mr. Thompson and Mr. Killick would not be alarmed. On the County Council they were accustomed to that kind of thing. He and others had had papers served upon them surcharging them to the amount of £200,000. (Laughter.) The Deputy Clerk explained that when Sir Henry was appointed he offered alternative schemes. The arrangement accepted was that he should be paid £700. and travelling expenses. The £21. in question was for the rent of his assistant's temporary laboratory and personal expenses, and had, therefore, been disallowed by the Auditor. It was suggested that the amount should be deducted from the next payment to Sir H. Roscoe.

The meeting then terminated.

CANADIAN PETROLEUM MATTERS.

CRUDE is still as firm as ever, firmer, if possible, but it does not show any inclination to rise, neither does any one expect it to rise much more. It is certain, however, that the price will not fall much for several months any way. The visible supply of crude is very small, and is continually decreasing, the consumption just now being far greater than the production. The visible supply of crude on October 1st was 94,000, a very small surplus, but on the 1st of November it had dwindled down to 59,000 barrels, a decrease of 35,000 during the month. It must be patent to everybody that if this keeps on much longer, as it most likely will, there will be scarcely any crude on the market at all, except as it is pumped, and that is not nearly enough to supply the demand just now.

The refineries have been doing a very large trade this fall, perhaps larger than ever before. The shipments of refined oil from Petrolia, for the month of October, amounted to 1,684,225 gallons, a very large amount of oil, and this does not include the shipments of other kinds of oil. This does not take into account the shipments from the Sarnia refinery, which were considerable. It must be plain to the veriest schoolboy that under these circumstances the price of crude is far more likely to rise than to drop, so long as the present rush continues, which will probably be till next January. This is very nice for the producer, very nice, but apparently he has not yet learned to look beyond the extreme terminal point of his proboscis. Some of them started selling their oil on 'Change when they saw that it really was forcing the price up, but now that the price has apparently reached its limit they are resum-

ing their old insane policy of delivering to the refineries. They apparently believe that now the price has gone up it will stay up without any trouble on their part.—*Petrolia Topic*

THE DETERMINATION OF TIN AND ANTIMONY IN COMMERCIAL SAMPLES.

By J. H. DAGGER.

THE separation and determination of these metals by a method at once exact and expeditious is a matter of very great importance to the metallurgist and smelter, and though many experiments have been made, very little has yet been done to extend our list of available reactions. In the following paper I do not submit anything further than such modifications of well-known methods which an experience of several years in the laboratory work connected with the smelting and refining of these metals has found useful, and tested in the analyses of many hundred samples of every variety of alloy and product containing them.

Alloys of Tin, Lead, and Antimony.—Samples are taken preferably by drilling through (to ensure fair average) the bars or ingots, drillings being as fine and thin as possible. Two to four grammes of borings are taken, and treated with pure concentrated HNO_3 in a flask. If tin is only in small quantity, it is best to use dilute acid ($1\text{HNO}_3 + 2\text{Aq.}$). The Erlenmeyer form of flask will be found the most convenient, a small funnel being placed in the neck to prevent loss by spurling. When all action has ceased, and no more nitrous fumes are evolved, evaporate down until the white mass in the flask is just moist. With HNO_3 dilute, boil, allow precipitate, &c., to settle, wash three times with boiling water by decantation, and once on the filter. Dry at 212°F. , detach precipitate, &c., from filter as perfectly as possible, ignite filter, moisten ash with a drop HNO_3 , and add to precipitate in a porcelain crucible. Heat for a few moments over Bunsen flame, then a minute over blow-pipe, allow to cool in desiccator, weigh $\text{SnO}_2 + \text{Sb}_2\text{O}_3$.

The oxides are now fused with six times their weight of NaHO in a nickel crucible; it is best just to fuse the NaHO in the crucible to expel any absorbed water, allow to solidify, add oxides to warm mass, and again fuse, best over a Fletcher Argand burner, for about twenty minutes; whilst still fluid, a bent piece of stout nickel wire is introduced, and allowed to remain. This serves as a handle, and is useful in detaching the fused mass from the crucible. When cold, this readily comes away, and is plunged into a beaker containing boiling water, where it rapidly dissolves off the wire; the washings from the crucible are added, and the solution rendered acid with HCl or H_2SO_4 , treated nearly to boiling, and pure crystallized oxalic acid added in proportion of 20 grammes for every gramme of tin supposed to be present. The solution should be quite clear and colourless. H_2S is passed through the hot solution to saturation, then cover the beaker with a clock glass; allow precipitated Sb_2S_3 to settle in a warm place for an hour, and all the antimony present will separate out.

If antimony is present in large quantity, dilute original NaHO solution of the oxides to 500 c.c. and use 250 for estimation. Precipitated Sb_2S_3 is washed on the filter, first with boiling water containing $\text{C}_2\text{H}_2\text{O}_4$, then with boiling water alone until washings no longer redden litmus paper. Precipitate is dried at 212°F. , detached as completely as possible from filter, transferred to a large porcelain crucible, oxidised with concentrated HNO_3 , added cautiously drop by drop as action is violent; fuming HNO_3 is best if much free S precipitates with the antimony sulphide. Heat very carefully to complete oxidation, then slowly to dryness, over asbestos board heated by Bunsen flame to boil off H_2SO_4 . When dry ignite. (The filter, if washing has been judiciously done, will retain only a mere stain of the precipitate; the clean portion is cut away with scissors and the remaining moistened with concentrated NH_4NO_3 dried, ignited, and ash added to precipitate in crucible.) Weigh as Sb_2O_3 (diantimonic tetroxide). Deduct from weight of mixed oxides, difference = SnO_2 . If ignited Sb_2O_3 is blackened on ignition, it is probably owing to traces of CuO . This may be removed by digesting with HNO_3 , filtering through small filter, wash, ignite, and weigh; if necessary, deduct CuO from precipitated oxides.

Alloys containing copper, bismuth, iron, etc., are best dissolved in Aqua regia excess of HNO_3 removed by evaporation, diluted, precipitated with H_2S , precipitate rapidly washed with hot water by decantation, passing a few bubbles H_2S through each washing, digest precipitate with warm NaHO solution or yellow K_2S solution at a gentle heat, in a corked flask, filter, wash, dilute to 500 and take 250 c.c., acidify with HCl , warm, pass a few bubbles H_2S to ensure complete precipitation, filter, wash, dissolve precipitate in HCl with a few crystals KClO_3 , boil off every trace of Cl_2 dilute, filter if necessary, add crystallized oxalic acid as before. The remaining 250 c.c. is acidified with HCl , precipitated sulphides filtered, washed with water containing H_2S , dried at 212° , removed from filter, oxidised with HNO_3 dried, ignited, and weighed as $\text{Sb}_2\text{O}_3 + \text{SnO}_2$, from which Sb_2O_3 is deducted as before.

Slags are reduced to the finest powder in an agate mortar fused with NaHO in a nickel crucible, fused mass dissolved, acidified with HCl ,

taken to dryness over water-bath to separate SiO_2 , moistened with HCl , diluted to 500 c.c. in 250 c.c. precipitate with H_2S if Cu , Pb , Bi only in small quantity boil, precipitate with HNO_3 dilute, filter, ignite, weigh mixed $\text{SnO}_2 + \text{Sb}_2\text{O}_3$ in remaining 250 c.c. precipitate in $\text{C}_2\text{H}_2\text{O}_4$ solution as before.

Reports of Companies.

LAGUNAS NITRATE COMPANY, LIMITED.

Information has been received from Chili that the *officina* of the Lagunas Company, Limited, produced last month (November) 250,000 quintals (or about 11,500 tons of nitrate), and the net profits for the first six months' working are estimated at £80,000., although only half the machinery has been working during that period.

NEW TAMARUGAL NITRATE COMPANY, LIMITED.

According to the report of the directors of this company, the net profit, inclusive of the sum of £933. 19s. 11d. brought forward from last year, amounts to £52,770. 5s. 9d., and after providing for the debenture service fund and deducting dividends paid on the 8 per cent. preference shares for the year, and the interim dividend of $2\frac{1}{2}$ per cent. (9d. per share) on the ordinary shares, leaves a balance of £9,834. 5s. 8d. Out of this balance the directors propose to add £2,000. to the depreciation fund, bringing up that fund to £6,000., and they recommend a dividend of 1s. per share on the ordinary shares (free of income tax), payable 13th inst., which will absorb £6,716. 13s. 4d., leaving a balance of £1,117. 12s. 4d. to be carried forward to next year. All realisable assets at July 31 have been converted at 12d., with the exception of the amounts for working plant and stores, the difference between 15d. and 12d. amounting to £3,898. 16s. 1d., having been placed to suspense account. The report proceeds to state:—"The profit and loss account shows an apparent loss on exchange of £6,887. 13s. 4d., but, as a large part of the assets consist of cash which remains in Chili, the apparent loss would be made up by a subsequent rise in exchange. Prices for nitrate during the year have been good, and since the accounts were closed the remaining production of the year 1894 has been advantageously sold. The company's agents purchased at the recent sale of Government nitrate grounds, the property called Resurreccion, consisting of 241 Peruvian estacas, adjoining La Patria, and grounds adjoining La Palma, consisting of 16 Peruvian estacas, at a total cost of £43,381., which was the upset price fixed by the Government. This is considered to have greatly improved the company's property."

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending November 10th, 1894, was fairly good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed two deficiencies in illuminating power, namely, at Clapham 15.9 candles, and at Blackfriars 15.6 candles. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.45	11.1	0.25	Nil.
South Metropolitan Gas Co.	6	16.55	10.95	0.35	Nil.
Commercial Gas Co.	2	16.4	9.95	0.65	Nil.

The supply for the week ending Nov. 17th was good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.43	10.64	0.27	Nil.
South Metropolitan Gas Co.	6	16.53	12.25	0.23	Nil.
Commercial Gas Co.	2	16.35	11.45	0.55	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

The table subjoined shows that this substance agrees in composition with the vitellin which exists in the seeds of wheat, maize, hemp, castor-bean, squash, and flax. As the properties of the preparations obtained from all these sources are substantially alike, there can be little doubt that one and the same proteid exists in them all. For this body we adopt the name *Edestin*, from the Greek *edestos*, signifying edible, in view of its occurrence in so many important food-stuffs.

COMPOSITION OF EDESTIN FROM VARIOUS SEEDS.

	Wheat kernel.	Maize kernel.	Hemp- seed.	Castor- bean.	Squash seed.	Flax- seed.	Cotton- seed.
Carbon....	51.03	51.71	51.28	51.31	51.66	51.48	51.71
Hydrogen..	6.85	6.85	6.84	6.97	6.89	6.94	6.86
Nitrogen ..	18.39	18.12	18.84	18.75	18.51	18.60	18.64
Sulphur....	0.69	0.86	0.87	0.76	0.88	0.81	0.62
Oxygen....	23.04	22.46	22.17	22.21	22.06	22.17	22.17
	100.00	100.00	100.00	100.00	100.00	100.00	100.00

The considerable differences in carbon and nitrogen in the above analyses amounting, in the extreme cases, to 0.7 per cent., are, in general, not greater than the discrepancies between analyses of preparations from the same seed. In the seeds of wheat and maize, other water and salt-soluble proteids occur in considerable quantities, and it is probable that the crystallized preparations obtained from hemp, castor-bean, squash, and flax more truly represent the composition of edestin than the amorphous or spheroidal substance yielded by the cereal seeds.

The slight differences in the deportment of solutions of these preparations of edestin may be reasonably attributed to admixtures of traces of other proteids.

c. *Extraction with Potash Water.*—After extraction with water and sodium chloride solution a considerable amount of proteid was always found in the residual-meal which could be partly removed by two-tenths per cent. potash solution. All attempts to obtain the proteid thus extracted in a pure state have hitherto entirely failed. Much colouring-matter passes into the alkaline solutions, and when the proteid is precipitated, goes down with it and cannot be removed by any process we have hitherto applied.

When freshly prepared the alkaline extracts, as well as the meal moistened with the alkali, are of a bright reddish-yellow colour, but on exposure to the air they rapidly darken and finally become greenish-black. So much gummy matter is also extracted by alkaline solutions that it is almost impossible to filter them clear. As a result no preparations were obtained the analysis of which could shed any light on the composition of the proteid which they represented. The residue of meal after treatment with potash still contains a notable quantity of nitrogen.

d. *Amounts of the different Forms of Proteids in Cottonseed.*—As already shown, the proteid matter of cottonseed soluble in water, consists almost wholly of proteose. Making full allowance for incomplete extraction and loss, this does not exceed 0.75 per cent. of the oil-free meal. The highest yield of globulin recovered in the preceding extractions was 15.83 per cent. of the oil-free meal, and contained 42.3 per cent. of the total nitrogen. After repeated extraction with potash water, the residue contained, in the case where extraction was most complete, 11.4 per cent. of the total nitrogen, showing that 88.6 per cent. of the total nitrogen had been dissolved. The difference between the percentage of nitrogen removed by sodium chloride solutions and that extracted by weak potash, represents the proteid dissolved by potash water which is not soluble in saline solutions, and which corresponds to 46.3 per cent. of the total nitrogen, assuming all this nitrogen to be present in proteid form.

These data may be tabulated as follows:

	Per cent. of Air-dry and oil- free meal.	Total nitrogen.
Proteose	0.75	2.0
Salt-soluble proteid. Edestin	15.83	42.3
Alkali soluble and salt-insoluble proteid .....	....	44.3
Proteid insoluble both in salt and alkali .....	....	11.4
		100.0

MORE ALCOHOLIC TEMPERANCE DRINKS.—Several other cases of selling intoxicating temperance drinks have been brought before the Lancaster magistrates recently. A conviction was recently obtained for selling intoxicating herb beer. In the present case it was brown pop and horehound, the former containing six per cent. of alcohol, the strength of ordinary beer, and the latter 3.4 spirit. The law only allows two per cent. spirit. The solicitor appearing on behalf of the Inland Revenue described the case as an imposition on teetotalers, and a fraud on the revenue. Penalties up to 20s. and costs were imposed.

Trade Notes.

SOCIETY OF CHEMICAL INDUSTRY: *Nottingham Section.*—On Wednesday, 12th inst., a meeting of this section will be held in the University College, at 7.30 p.m., when a paper will be read by Mr. F. J. R. Carulla, Esq., F.C.S., on "Recent Experiences when putting up a Steam Boiler."

FROM DERBY TO VALENCIA VIA THE CANAL.—We are informed that the first consignment of goods ever sent from Derby to Manchester to be sent abroad via the Ship Canal was a parcel of ten tons of sulphate of ammonia despatched last week by the Sharon Chemical Company, Limited, and intended for Valencia, Spain.

NEWCASTLE COAL IN EGYPT.—According to the *Newcastle Daily Chronicle* an Egyptian circular just received states that in the coal market at Alexandria there is hardly any demand, and "best Newcastle coal is retailing at equal to 14s. 6d. to 14s. 9d. per ton." This is less than the price of household coal in Newcastle, though the freight from the English to the Egyptian port is about 5s. per ton.

OLIVE OIL OR COTTONSEED?—The vestry of St. Leonard, Shore-ditch, recently prosecuted Frederick Beavis, of 80, St. John's-road, Hoxton, and Messrs. Cooper Brothers, of 11, Pitfield-street, Hoxton, for selling as olive oil, for salads, &c., an article which in the case of Beavis had 80 per cent., and in the other instance 77.3 per cent., of "added" oils, principally cottonseed oil. Beavis was fined £16. and costs, and Messrs. Cooper £15. and costs. Sensible fines these, compared with the paltry penalty which we record this week as being imposed for selling "butter" composed of 85 per cent. foreign fats.

SMOKE PROSECUTIONS IN THE METROPOLIS.—The Royal Palace Hotel Company, Limited, of Kensington High-street, were summoned recently by the Westminster Vestry for suffering black smoke to issue from their premises in such quantities as to be a nuisance. Mr. Percy Gye prosecuted on behalf of the local authority. Defendants, who were represented by their manager, Mr. Henry Charles Rogers, admitted that the smoke did issue, but pleaded that they had done their best to prevent it. Mr. Gye said he thought the facts of the case warranted a penalty being imposed. The nuisance had been going on for two months in spite of repeated letters calling attention to it before the summons was applied for. Complaints had been made by the Metropolitan Police, the Kensington Vestry, and by residents in the neighbourhood, but it seemed that nothing short of sharp dealing would do any good. He therefore asked for a penalty and abatement and prohibition orders. Mr. Sheil asked whether prohibition was not the equivalent of abatement. However, he would have the nuisance proved. Inspector Dee, an officer of the vestry, then spoke to watching the premises of the defendants on various dates, and to observing dense volumes of black smoke issuing from the chimney. Questioned by Mr. Rogers, the inspector said he was not aware that atmospheric conditions affected the density and colour of smoke. Black smoke was formed in the chimney, and no matter what the condition of the atmosphere might be, it would always come out. Mr. Sheil imposed a fine of £5. with £3 3s. costs.

BLEACHING WITH SODIUM SILICATE.—But an entirely new departure has recently been made in France in the application of soluble glass to the bleaching of linen; and there is no reason why, in such a great linen-producing country as the United Kingdom, the use of soluble glass should not be widely and immediately extended. At a recent meeting of the Paris Academy of Science, Mons. G. Geisenheimer described some researches which, though exceedingly interesting in detail, may be condensed as follows:—In order to insure the complete bleaching of linen, it is customary to increase the causticity of the ley, and to prolong the time of boiling, with the result that the fabric is injured though its colour is improved. The production of yellowish or brownish patches on the linen is usually attributed to impurities in the chemical used, but is chiefly due to the presence in the water of calcium and magnesium salts, which are precipitated on the fabric, and act as mordants, fixing the yellowish colouring matter of the ley. This injurious effect can be prevented by adding to the water a mixture of sodium carbonate and soluble glass. The effect is to precipitate calcium and magnesium silicates in a flocculent form which settles rapidly, does not adhere to the fabric, and becomes granular and pulverulent on boiling. Thus purified, only a very small quantity of caustic alkali is necessary, the greater part of the saponification being effected by means of the less injurious alkali carbonate. A convenient form in which to put up the soluble glass for sale for this purpose is to add from 10 to 20 per cent. of anhydrous sodium carbonate to a saturated solution of the soluble glass. The product is easily handled, and remains completely soluble in water. Further, the quantity necessary for a particular water can readily be calculated. Should any of our readers care to go into the matter more particularly they will find Geisenheimer's paper in the *Comptes Rendus*.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols continue quiet, price for 90's and 50/90's being 1s. 1½d. to 1s. 2d. There is a satisfactory demand for crude carbolic acid for export at 1s. 6d. to 1s. 6½d., but the home trade is dull: crystals, 40%, are quoted 5¼d., but are flat. Crude naphtha is quoted 5¼d., and solvent 1s. 1½d., but the actual tendency is, if anything, towards easier prices. Creosote and anthracene keep steady, the latter being quoted 1s. 1d. for 30% A, and 10¼d. for B. Pitch continues firm f.o.b. East Coast at the current quotations.

Sulphate of ammonia remains pretty much the same, though there is some prospect of a better feeling. There has been a small business done for immediate consumption, but makers seem inclined to hold, having recovered from last week's scare. Quotations, however, are still variable, and in consequence more or less nominal. Beckton is quoted £11. 10s., London outside makes £11. 11s. 3d., Liverpool £11. 12s. 6d., Hull £11. 11s. 3d., and Leith £11. 12s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

In the alkali trade there is, if anything, a better tone in the market, though the competition still wages keen among several large makers. Ammonia alkali, 58%, has been advanced 5s. per ton this week, price on rails, in bags, now being £3. 5s. to £3. 7s. 6d. per ton. For caustic soda the demand on the spot is more active, and the tendency to further decline in prices has meantime been arrested by the large curtailment of output: current quotations to-day may be taken as follows:—f.o.b. Tyne, 77%, £10. 5s.; 74%, £9. 5s.; 70%, £8. 5s.; 60%, £7. 5s.; cream, 60%, £7. 2s. 6d. per ton, 10-ton lots and upwards. For forward contracts, competition in caustic soda is still active. Bleaching powder is fairly steady, both for spot and forward delivery: present quotation being £7. 5s. per ton, f.o.r. makers' works, and contracts £7. per ton. Soda crystals are without improvement. For chlorate of potash 5¼d. to 5½d. per lb., and soda 7½d. to 7¾d. per lb. are about the nearest values to-day. For sulphate of copper there is better inquiry, and prices are rather firmer, more especially for forward: spot price is £14. 12s. 6d. to £14. 15s., f.o.b. White powdered arsenic scarce and dearer at £14. 5s. Garston. Acetates of lime, brown and grey, are again easier. For acetate of soda the market is firmer, and price advanced. Other acetates and acetic acid are without change in position. The demand continues good for potash, caustic and carbonate, for which no change in values has taken place. Nitrate of soda is reported firmer, with a better outlook. Carbolic acid, crystals and liquid, is flat. Aniline oil and salts have also receded in price. Yellow prussiate of potash is still in good request at full rates at 10¼d. to 10½d. per lb. For miscellaneous chemicals the demand generally is quiet, and prices all round are still below the average.

REPORT ON MANURE MATERIAL.

The market continues very quiet, and there would seem to be no hope of improvement this side the new year. Prices, however, are fairly steady, the policy of sellers being rather to hold for some improvement than to dispose of their goods at any price. Mineral phosphates are unchanged: Florida rock, 75/80%, offers at 7¾d. per unit, in cargoes c.i.f. to good United Kingdom ports, 1895 steamer shipment; South Carolina River rock at 6¼d. per unit; Peace River rock at 6½d. per unit; and Algerian, 55/60%, at 6¼d. per unit. There is nothing doing in River Plate cargoes of bones for United Kingdom, but there is more demand for Continent, and it is understood that there have been several transactions at good prices. The value, delivered at safe United Kingdom ports, cannot be put at over £4. 8s. 9d. per ton. Crushed Kurrachee bones, for shipment ahead, offer at £4. 12s. 6d. per ton, to Liverpool or Hull, without finding buyers. Further sales of Bombay bone meal have been made to Glasgow and Liverpool, forward shipment, at £4. 10s. per ton, but for anything near at hand 2s. 6d. per ton more is required. Common grinding bones and parcels suitable for charring meet a ready sale at Liverpool at £4. 5s. to £4. 7s. 6d. per ton. Nitrate of soda is quiet, but steady: Liverpool spot price is 8s. 10½d. per cwt. for fine quality, and 8s. 9d. per cwt. for ordinary quality. Due cargoes are worth about 8s. 7½d. per cwt., October to middle November sailings 8s. 9d. to 8s. 10½d. per cwt., and later sailings 8s. 9d. to 8s. 7½d.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil being scarce is very firm. Lagos offers at £23 10s. on spot. Owing to the prices ruling sales are somewhat restricted, and forward business is very quiet. Olive keeps in fairly good demand, but

most transactions have been made on private terms. Linseed continues quiet, at 21s. 3d. to 22s. per cwt. for Liverpool makes in export casks. There is only a small business doing. Cottonseed, after a further drop, is now steady, Liverpool refined being quoted 18s. 3d. to 19s. per cwt. American is unaltered at 19s. 6d. Castor oil, with the exception of French, keeps steady. Good seconds Calcutta is offering at 2¼d. to 2½d., with a moderate demand. First pressure French 2½d. to 2¾d. per lb. Tallow is steady, with a tendency towards higher prices. Resin is very firm. Common is now quoted 4s., and medium 4s. 3d. to 6s., owing to scarcity of stocks. Spirits of turpentine are steady and unaltered in price, 21s. for American and 20s. per cwt. Mexican in cases. Petroleum quiet at 4¼d. to 5¼d. American according to quality, and Russian refined 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

THE METAL MARKET.

LONDON, WEDNESDAY.—Pig iron, easy: Scotch warrants closed at 42s. 5d., Middlesbrough 35s. 5d. cash, and hematite 43s. 4½d. Copper, quieter: Chili bars, G. O. B.'s and G. M. B.'s, closed at £40. to £40. 5s. cash, and £40. 7s. 6d. to £40. 12s. 6d. three months. Tin, steady: Straits closed at £61. 10s. to £62. cash, and £61. 10s. od. to £62. os. od. three months; Australian, £61. 15s. od.; English ingots, £65. os. od. to £65. 10s. od. Lead, quiet: Spanish, £9. 12s. 6d.; English, £9. 13s. 9d. to £9. 15s. Silesian spelter, ordinary: £14. to £14. 2s. 6d. Nickel, 1s. 4d. Antimony, £33. 5s. Quicksilver: first hands, £6. 15s.; second hands, £6. 7s. 6d. Copper shares, easy: Cape, 1¼ to 1½; Copiapo, 1¼ to 1½; Libiola, 3¼ to 3½; Mason and Barry, 1½ to 1¾; Rio Tinto, 14½ to 15; Tharsis, 4¼ to 4½.

LIVERPOOL MINERAL MARKET.

The market this week has ruled quiet, but firm, without any material fluctuations. Manganese is quiet, but steady, at 11d. to 1s. 1d. for prime qualities; ground is selling at from £6. to £12. 10s. Manganiferous ore: business has been done for cargoes of about 2,000 tons at 15s. to 17s. 6d., c.i.f. Bauxite is in good demand, and prices are firm at 20s. for first quality, 16s. for seconds, and 12s. for thirds, f.o.b., for Irish Hill Brand, and owing to the demand for this ore for the manufacture of aluminium, large sales are anticipated. Chrome ore is in strong demand, and bringing full figures; stocks are nil, whilst arrivals are slow, and prices are firm at 65s. to 70s. for 40%, and 105s. to 110s. for 50% ore. French chalk: considerable quantities have changed hands; prices are firm at 75s. to 110s. for "Angel White" brands. Barytes: carbonate is scarce, with a fair demand: best lump at 95s., and nut size at 70s. to 80s. Finest sulphate, lump and ground, is scarce. Wolfram and scheelite are in fair demand, owing to the increased quantities required for metals containing these alloys: wolfram £18. to £24. for 60%, whilst higher grades bring considerably higher prices. For strontia sulphate (Celestine) there is more inquiry, and prices have an upward tendency. Plumbago, for founders' purposes, £5. to £6.; better qualities, £8. to £10. Bog ore, 22s. to 23s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

With the dull cheerless weather and markedly early nightfall, the call upon the Scotch Mineral Oil Companies, particularly for burning oil, has attained an approximation to the maximum of the season, and daily deliveries are now very large. These are all ex-contracts, and therefore only at prices fixed in August so far as makers are concerned; but resellers are able to command a fraction more. In the case of paraffin spirit (naphtha), which is very scarce, and not so entirely subject to the season's contracting system, there has been a steady rising of late weeks, and the value now is quite 7d. per gallon, a price not touched for two or three years back.

In the almost complete absence of buyers, sulphate of ammonia has slipped its price still further, and as low as £11. 12s. 6d. has been taken; but this, it should be noted, was a case of needy selling, and does not reflect the view taken by those makers who can afford to wait. The market is very unpromising.

General chemicals have not bettered in any way, but rather the reverse, and stoppage for the New Year holidays threatens to be unusually protracted. It is reported that 1895 selling forward has been done very low.

Chief prices current are:—Soda crystals, 37s. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52° £4. 10s. to £5. 5s. nett, Tyne; alum in lump £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 7s. 6d., 70/72° £8. 7s. 6d., 60/62° £7. 7s. 6d., and cream 60/62° £7. 5s. all nett, Liverpool; bleaching powder, £7. 5s., nett, Tyne; salicake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks, £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5½d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £11. 12s. 6d. to £11. 15s. prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 5s. less 5%, Liverpool; paraffin scale, hard 1¼d.; soft 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined 2½d.; paraffin spirit (naphtha), 7d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ¼d. to ¾d. lower); ditto (lubricating) 865° £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were 4,500 bags unrefined beet.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are quiet, and with the approach of next year the demand is only limited for "prompt." Soda crystals are quoted locally at £1. 17s. per ton, gross weight. Bleaching powder £7. 5s. per ton. Sulphur very scarce at £4. per ton. Caustic soda unchanged.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £1. 17s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, £1. 17s. 6d. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt in good demand at 9s. to 9s. 6d. per ton, f.o.b. Tees. Block salt firm at 15s. per ton.

COALS have been weaker in price during the past week, and the demand is anything but brisk. To-day's quotations are: Best Northumbrian steam, 9s. to 9s. 6d. per ton; second qualities do., 8s. to 8s. 6d. per ton; small steam, 3s. 9d. to 4s. per ton; gas coals dull, 7s. to 8s. per ton; coke quiet, 14s. to 14s. 6d. per ton.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Business amongst the seed-crushers here is exceedingly quiet, only some two or three firms running regularly. The imports up to date, compared with the same time a year ago, are: Linseed, 611,083 qrs. against 451,720 qrs.; rapeseed, 138,821 qrs. against 79,039 qrs.; cottonseed, 159,473 tons against 154,340 tons. Olive oil, 20,570 casks against 8,766 casks; rape oil, 7,360 casks against 6,661 casks; oil cake, 16,382 tons against 20,149 tons; tallow, 27,026 cwt. against 38,232 cwt.; bones, 8,118 tons against 3,996 tons; turpentine, 16,330 barrels against 14,616 barrels; tar, 19,680 barrels against 13,756 barrels. Linseed oil closes with practically no alteration upon last prices. Though it had receded 5s. per ton it has now recovered: 19s. 9d. naked spot; December, 19s. 6d. to 19s. 7½d.; January-April, 19s. 3d.; May-August, 18s. 9d. to 18s. 10½d. Boiled and refined ditto from £1. to £2. per ton extra. Casks, 17s. 6d., and ordinary barrels, 25s. per ton extra. Export for the week, 1,760 cwt. Refined cotton oil flat at 16s. 4½d. naked spot; December-April, 16s. 7½d.; May-August, 17s. 4½d. Crude, 15s. naked spot. Export of refined 6,500 cwt. Rape oil continues in good demand, but supplies keep down prices. Tallow, town melted, £24. "Vegaline," the new vegetable butter, white and neutral, for culinary and confectionery purposes, £30. per ton. Olive oil, £31. to £38. per tun. Turpentine, 21s. 3d. per cwt. Cod oil practically no demand, and

prices have fallen 10s. per ton, £16. to £18. per ton. Pine oil, £6. 5s. per ton. Soft soap, 14s. 6d. per cwt. Sod oil busier. Boiled drying oil £13. per ton.

CAKES.—Linseed cakes in moderate request. The slight supplies of seed, spot and prospective, point to better prices. 95% pure, £6. 12s. 6d. Russians, £6. 2s. 6d. to £6. 15s. Oilcakes, £5. 7s. 6d. to £5. 15s. Cotton cakes firm: best new seed, £3. 15s.; old seed, irregular, £3. 10s. to £3. 12s. 6d. Rape Cakes: East India, £3. 15s.; Black Sea, £2. 15s.; Feeding, £4. 10s.

PAINTS.—Business is so dull amongst paint manufacturing firms that the principal ones are running short time. Dry colours are quoted: Venetian red, dry, from £3. 15s.; Red oxide, dry, from £7. to £18.; Blue black, £4.; Yellow ochre from £3. 15s. Leads and oxide of zinc unchanged. Venetian red, black, yellow ochre, blue, and oxide paints from £12. per ton. Paint remover from 25s. to 30s. per cwt. Black varnish, £5. 10s. per ton, barrels free. Oak varnish from 5s. 6d. per gallon.

New Companies.

Chrome Mines Co., Ltd.—CAPITAL, £150,000., in shares of £10. each. This company has been formed to purchase and work chrome ore mines in New Caledonia. The subscribers to the memorandum of association are: A. Desmazures, 30, Rue de la Blenifiance, Paris, mines proprietor; J. Ebbsmith, 86, St. James-street, S.W., gentleman; C. Selby, 23, Queen Victoria-street, E.C., clerk; W. J. Finch, Herne Bay, secretary; P. A. Bullock, 62, Oakley-square, N.W., solicitor's clerk; J. M. Simmonds, Sutton, Surrey, solicitor.

Petroleum Shipping Co. of London, Ltd.—CAPITAL, £200,000., in shares of £10. each. This company has been formed to carry on the business of shipowners and carriers, etc. The subscribers to the memorandum of association are: T. H. Jidgen, Sefton Cottage, Forty Hill, Enfield, gentleman; T. J. Bowles, 27, Upper Marylebone-street, W., gentleman; W. Eacott, 29, Powell-road, N.E., gentleman; J. R. Marriott, Kibworth Harcourt, Leicester, gentleman; A. W. N. Stuart, Barnsbury, accountant; J. A. Williams, 1, Park-place, N.W., gentleman; S. Jordan, 13, Callow-street, S.W., gentleman.

Robert Heath and Son., Ltd.—CAPITAL, £500,000., in shares of £100. each. This company has been formed to take over the business of coal and ironmasters and steelmakers, carried on at Biddulph Valley Ironworks, Staffordshire. The subscribers to the memorandum of association are: R. Heath, Greenway Bank, Stoke-on-Trent, ironmaster; J. Heath, Newcastle, Staffordshire, ironmaster; A. H. Heath, Newcastle, Staffordshire, ironmaster; J. Harding, Stoke-on-Trent, manager; J. H. Cole, Congleton, mining engineer; A. H. Harding, Anerley Park, S.E., agent; G. Trubshaw, Liverpool, agent.

Messrs. W. H. Holland and Co., Ltd.—CAPITAL, £25,000., in 4,000 ordinary and 1,000 preference shares of £5. each. This company has been formed to purchase the drysaltery business carried on at Southport by W. H. Holland, and the soapworks of Jarratt Bros., Bradford, Yorkshire. The subscribers to the memorandum of association are: W. Bottomley, 43, Derby-road, Southport, merchant; J. B. Foggitt, 25, Lord-street, Southport; H. Brooke, 80, Leyland-road, Southport; A. F. Stephenson, Southport, newspaper manager; G. H. Hyde, 129, Lord-street, Liverpool, stock and share broker; W. H. Holland, Southport, drysalter; T. Jarratt, 23, Hind-street, Bradford, manufacturer.

William Edge and Sons, Ltd.—CAPITAL, £30,070., in shares of £10. each. This company has been formed to take over, as a going concern, the business of chemical manufacturer, dye merchant, etc., now carried on at Bolton. The subscribers to the memorandum of association are: W. Edge, Thornleigh, Thornton, Poulton-le-Fylde, blue manufacturer; K. Edge, Halliwell, Bolton, colour manufacturer; J. Edge, 30, Cope Bank, Halliwell, Bolton, dye manufacturer; J. Knowles, Bolton, colour mixer; J. Haslam, Bolton, cashier; J. B. Bowling, Bolton, warehouseman; T. Waring, Westhoughton, smith.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Evaporation of Brine. R. Pearson. 22,316. November 19.
Manufacture of Oxidised Lead. A. Gutensohn. 22,363. November 19.
Improvements in Coke Ovens and Utilising the Products of Combustion. H. A. Allport and A. Crossley. 22,452. November 20.
Apparatus for Analysing Gases. E. Natanson. 22,472. November 20.
Disinfecting Powders. F. M. Spence. 22,494. November 21.

Deodorising and Bleaching Hydrocarbon Oils, etc. S. Banner. 22,504. November 21.
 Conversion of Sulphocyanides into Ferrocyanides. G. T. Beilby. 22,511. November 21.
 Apparatus for Drying China Clay, etc. J. H. Bowden. 22,524. November 21.
 Manufacture of Colouring Matter from Logwood. O. Imray. 22,533. November 21.
 Improvements in Manufacture of Paper Pulp. A. Grandjean. 22,566. November 21.
 Manufacture of Sulphides of the Alkalies. B. Peitzsch. 22,569. November 22.
 Improvements in the Electro-Chemical Decomposition of Solutions of Salts. J. C. Richardson. 22,613. November 22.
 Improvements in Filter Presses. J. Hill. 22,645. November 23.
 Improved Copper Fungicide. G. F. Strawson. 22,725. November 23.
 Soldering Aluminium. L. Oliver. 22,740. November 23.
 Improved Manufacture of Fertilisers. T. Twynan and F. T. Barnett. 22,756. November 24.
 Purifying Zinc Chloride Solutions for Electrolytic Treatment. J. Brock, A. E. Wareing, and F. Hurter. 22,826. November 24.
 Purifying Zinc Chloride Solutions for Electrolytic Treatment. J. Brock, A. E. Wareing, and F. Hurter. 22,827. November 24.

Utilizing Zinc Blende for Obtaining Metallic Zinc and Sulphur, and in Effecting the Decomposition of Salt for the Production of Soda and Chlorine. J. Brock, A. E. Wareing, and F. Hurter. 22,828. November 24.

Gazette Notices.

PARTNERSHIP DISSOLVED.

A. M'MASTER, G. W. CROSSLEY, and T. MORGAN, drysalers, Liverpool, under the style of Warren and Co.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

SKINNER, JOSEPH, Osborne House, Wharf-road, Cubitt Town, E., wood wool manufacturer.

LEWIS, A. C. SOMERSET, oil, etc., dealer.

Adjudications.

HARRINGTON, WM. JOHN, Hampstead, N.W., late oil and colour merchant, now out of business.

SIMPSON, SAMUEL JOSEPH, Leeds, Indigo refiners' manager.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending November 24th.

Acetic Acid—
 Holland, 12 pkgs. T. H. Lee
 140 A. & M. Zimmermann
Acetone—
 Holland, 6 pkgs. A. & M. Zimmermann
Alkali—
 Germany, 400 c. Pillow, Jones, & Co.
 France, 44 Spies Brs. & Co.
 Germany, 42 pkgs. L. & I. D. Jt. Co.
Alum—
 Holland, 31 pkgs. City Coml. Wf., Ltd.
 " 150 Ohlenschlager Brs.
 " 31 H. Wallace & Co.
Aluminium—
 Belgium, 700 l. 1 c. Major & Field
Ammonium Nitrate—
 Germany, 1 pkge. Petri Brs.
Antimony Ore—
 Australia, 10 t. Pillow, Jones, & Co.
Asbestos—
 Germany, £30 L. & I. D. Jt. Co.
 Italy, 104 Mory & Co.
 Canada, 250 W. H. Luning & Co.
 Holland, 114 Phillips & Graves
 " 22 G. Rahn & Co.
 Germany, 50 H. Lambert
 Canada, 250 J. Owen
 France, 360 W. Byford
 " 40 Girard Brs. & Co.
Barytes—
 Belgium, 195 cks. W. Harrison & Co.
 Holland, 22 O'Hara & Hoar
 Germany, 77 W. Harrison & Co.
Borax—
 Denmark, 1 pkge. Burton, Baker, & Co.
Camphor—
 Germany, 4 pkgs. L. & I. D. Jt. Co.
 Japan, 66 tubs. S. Figgis & Co.
 " 64 R. Warner & Co., Ltd.
 " 78 Hong Kong & Shanghai Banking Co.
 " 50 Union L. Co.
 " 74 City Coml. Wf., Ltd.
Caoutchouc—
 France, 35 c. L. & I. D. Jt. Co.
 Zanzibar, 13 Hale & Son
 Mad gascar, 192 Hammond & Co.
 E. Indies, 380 Huttenbach & Co.
 Zanzibar, 110 L. & I. D. Jt. Co.
 Germany, 13
 France, 23 H. Johnson & Sons
 E. Indies, 66 Prop. Hay's Wf.
 Zanzibar, 60 Wallace Brs.
 Aden, 29 C. S. Cox & Co.
Castor Oil—
 U. States, 26 brls. Lucas & Spencer's Wf., Ltd.
 E. Indies, 154 cks. Cayzer, Irvine, & Co.
 " 405 Ross & Deering
 Italy, 10 Grimwade, Ridley, & Co.
 " 5 R. Quincey & Son

Caustic Potash—
 Holland, 140 c. J. M. Steel & Co.
 " 2 J. Barber & Co.
 Belgium, 50 Petri Brs.
 Holland, 8 cks. Union L. Co.
Caustic Soda—
 Holland, 4 c. J. Barber & Co.
Chemicals (otherwise undescribed)
 Germany, 3 pkgs. L. & I. D. Jt. Co.
 " 58 A. & M. Zimmermann
 " 50 T. H. Lee
 Holland, 50 J. Barber & Co.
 Belgium, 8 T. Palmer
 Holland, 13 R. Morrison & Co.
 " 5 J. Owen
 Germany, 2 Craven & Co.
 Holland, 3 L. C. & D. Rly. Co., Ltd.
 Germany, 5 Petri Brs.
 " 5 Phillips & Graves
Chrome Ore—
 Australia, 120 t. L. & I. D. Jt. Co.
Cream of Tartar—
 France, 32 pkgs. B. & F. Wf. Co.
 Holland, 25 Kirkpatrick & Co.
 France, 15 W. C. Bacon & Co.
Dextrine—
 Germany, 10 pkgs. Duopul Brs.
 Holland, 3 Phillips & Graves
 Germany, 25 M. D. Co.
Dyestuffs—
Aniline
 Holland, 5 pkgs. L. C. & D. Rly. Co.
Annatto
 E. Indies, 1 pkge. J. P. Alpe & Co.
Argols
 Italy, 500 pkgs. Thames S. T. & L. Co., Ltd.
 Cape, 7 J. R. Thomson & Co.
Cochineal
 Canaries, 10 pkgs. Marshall & French
 " 15 W. M. Smith & Sons
Cutch
 Hong Kong, 700 pkgs. J. Swire & Sons
Divi Divi
 Trinidad, 25 pkgs. Low, Son, & Co.
Extracts
 Belgium, 70 pkgs. 15 cks. Leach & Co.
 France, 25 L. J. Levinstein & Sons
 " 30 cks. Union L. Co.
 Belgium, 105 pkgs. L. J. Levinstein & Sons
 Denmark, 1 Bailey & Leatham
 U. States, 5 Ide & Christie
 France, 100 dms. Carey & Sons
Gambler
 E. Indies, 699 pkgs. L. & I. D. Jt. Co.
 " 419 Williams, Torrey, & Co.
 " 2,735 E. Boustead & Co.
 " 230 Soundy & Sons
 " 715 Ross & Deering
 " 672 R. J. Henderson
 " 168 Brown & Elmslie
Indigo
 E. Indies, 6 cts. L. & I. D. Jt. Co.
 " 28 Parry & Co.
 Holland, 4 G. Rahn & Co.
 E. Indies, 3 Arbuthnot, Latham, & Co.

Logwood
 Jamaica, 8 t. Park, Macfadyen, & Co.
 " 15 Hawthorn, Shedden, & Co.
Myrabolams
 E. Indies, 8 pkgs. Arbuthnot, Latham, & Co.
 " 2,500 Montgomery & Co.
 " 34 Cayzer, Irvine, & Co.
 " 1,267 Baxter & Hoare
 " 1,683 A. Hagan
 " 667 Darling Brs.
Shumac
 Italy, 100 pkgs. H. Johnson & Sons
 " 500 Harris Brs.
Tanner's Bark
 Germany, 100 t. Devitt & Hett
 Adelaide, 25 Berry, Barclay, & Co.
 U. States, 58 A. & W. Nesbitt
 Belgium, 15 Leach & Co.
 Germany, 52 L. & I. D. Jt. Co.
 Adelaide, 1
Turmeric
 E. Indies, 39 pkgs. J. P. Alpe & Co.
Valonia
 A. Turkey, 6 t. W. H. Mitchell
 " 109 A. & W. Nesbitt
Glucose—
 Germany, 50 pkgs. 405 c. Prop. Chmbln.'s Wf.
 " 400 400 c. J. Frank & Ohlmann
 U. States, 1,000 1,000 Beck & Pollitzer
 " 50 300 Page, Son, & East
 " 300 1,712 Soundy & Sons
 " 200 1,140 L. Sutro & Co.
 " 100 552 Props. Scott's Wf.
 " 395 1,819 R. G. Hall & Co.
 " 50 275 Ohlenschlager Brs.
 Germany, 113 204 M. D. Co.
 U. States, 50 250 Union Ltge. Co., Ltd.
 Germany, 500 800 J. Barber & Co.
 France, 100 100 Tagant, Barrett & Co.
 " 250 250 Trier, Meyer & Co.
 Germany, 100 100 Ohlenschlager Brs.
 France, 80 80 Carey & Sons
 " 112 112 J. Barber & Co.
Iron Oxide—
 Austria, 21 pkgs. M. D. Co.
Lead Acetate—
 Germany, 30 pkgs. Beresford & Co.
 " 32 F. Boehm
 " 16 A. Hughes
Manure—
 France, 30 t. S. F. Waters
 China, 20 W. H. Mitchell
 France, 10 J. Burnett & Son
Methyl Alcohol—
 U. States, 160 brls. T. Jones
 " 120 J. R. Francis & Co.
Mica—
 E. Indies, £155 W. M. Smith & Sons

Ochre—
 Holland, 5 cks. Phillips & Graves
 France, 203 W. Harrison & Co.
Paraffin Wax—
 U. States, 3,769 brls. Anglo-American Oil Co.
 " 283 Mordaunt Brs.
 " 100 H. Hill & Sons
Phosphate Rock—
 U. States, 4,536 t. Anglo-Cont. Guano Wks.
 Belgium, 3 A. & E. Albert
 France, 165 A. Hunter & Co.
 Belgium, 160 Muller & Johnson
 " 200 D. de Pass & Co.
Pitch—
 Germany, 5 cks. H. Lambert
 Sweden, 100 cks. E. G. Sieveking
 U. States, 14 pkgs. Abbott, Abbott & Co.
Plumbago—
 Germany, 44 cks. Leuty & Kessel
 Ceylon, 338 brls. Williams, Torrey & Co.
 " 276 R. G. Hall & Co.
 " 128 Beresford & Co.
 Germany, 11 cks. O. Scholzig
 " 21 cks. R. Warner & Co.
 " 25 B. Gallaway
 Ceylon, 79 L. & I. D. Jt. Co.
 " 46 Lucas & Spencer's Wf.
 Holland, 60 B. Gallaway
Potassium Bicarbonate—
 Holland, 2 pkgs. A. & M. Zimmermann
Potassium Carbonate—
 France, 20 c. F. J. Putz & Co.
 " 27 J. A. Reid
 Germany, 200 F. Boehm
 Holland, 1 Spies Brs. & Co.
Potassium Chlorate—
 Belgium, 25 pkgs. J. W. Drysdale & Co.
Potassium Chloride—
 Holland, 3 pkgs. J. Owen
 Germany, 100 W. G. Blagden
Potassium Oxalate—
 Germany, 10 pkgs. F. Boehm
 Holland, 20 Beresford & Co.
Potassium Sulphate—
 E. Indies, 200 pkgs. G. H. Wilson & Sons
 France, 50 Petri Brs.
Pumice Stone—
 Italy, 1 t. K. Fellingham
 " 2 Magee, Taylor, & Co.
 Canary, 12 Burrell & Co.
Rosin—
 U. States, 28 brls. L. & I. D. Jt. Co.
 France, 13 Lucas & Spencer's Wf. Co.
 " 700 F. & S. Chiesman & Co.
 U. States, 500 Moore & Hole
Sal Acetos—
 Germany, 10 pkgs. F. Boehm

Saltetre—

Germany, 40 cks. J. Hall & Sons
E. Indies, 1,233 bgs. Lucas & Spencer's
Wf, Ld.
" 628 Ralli Brs
Germany, 110 kgs. 181 cks. P. Hecker
& Co.
E. Indies, 637 bgs. A. Hunter & Co.
" 807 Co-op. Lightgr
Ass'n.
Germany, 2 cks. Browne & Elmslie

Soda—

Holland, 220 c. City Com'l Wf, Ld.

Soda Ash—

Germany, 4,120 c. R. Waters

Sodium Bicarbonate—

Holland, 3 c. J. Barber & Co.

Sodium Hyposulphite—

Germany, 70 pkgs. Beresford & Co.

Sodium Nitrate—

Belgium, 5 pkgs. Arnati & Harrison

Sodium Sulphate—

Holland, 29 pkgs. Bevington & Sons

Starch—

Holland, 345 pkgs. Philipps & Graves

Belgium, 267 F. Claydon & Co.

" 90 Prop. Scott's Wf

" 20 Leach & Co.

Holland, 53 Taylor Brs.

Germany, 690 Horne & Co.

Belgium, 116 T. H. Lee

Holland, 601 Little & Johnston

France, 10 Carey & Sons

Stearine—

France, 130 bgs. Walbaum & Tosetti

Belgium, 10 cks. H. Hill & Sons

Sulphur—

Italy, 50 t. J. Greig

" 5 F. Snaith

" 51 G. Boor & Co.

" 25 F. C. Devon & Co.

" 200 Johnson & Hooper

" 10 J. Kitchen, Ld.

" 4 W. Balchin

" 5 C. Tennant, Sons

Sulphur Ore—

Italy, 2 t. Kuhner, Henderson

" 2 t. & Co.

Talc—

Italy, 490 A. H. Smith

Tallow and Stearine—

Belgium, 5 Fuerst Brs.

Tartaric Acid—

Holland, 49 pkgs. B. & F. Wf. Co.

Italy, 6 Kirkpatrick & Co.

" 52 B. & F. Wf. Co.

Turpentine—

Savannah, 7,461 brls. Nicholl & Knight

N. Russia, 51 C. B. Leighton

" 26 Dusset Brs. & Co.

Ultramarine—

Belgium, 30 pkgs. Leach & Co.

Holland, 3 cks. Philipps & Graves

Germany, 32 T. Hamilton

Yarnish—

France, 1 pkg. J. Burnett & Sons

U. States, 40 Beck & Pollitzer

Germany, 4 L. & I. D. Jt. Co.

U. States, 40 Allan Brs. & Co.

Yerdigris—

France, 10 pkgs. B. & F. Wf. Co.

Vermilion—

Germany, 4 cs. Philipps & Graves

White Lead—

France, 19 cks. J. Watts & Son

Germany, 30 S. H. Willoughby

" 37 D. Storer & Sons

Holland, 4 J. Matton

" 37 Randall Brs.

Germany, 12 Petri Brs.

" 36 Randall Brs.

" 45 M. Ashby, Ld.

Wood Pulp—

Denmark, 480 pkgs. G. F. Green & Co

Norway, 240 W. G. Taylor & Co.

Austria, 102 W. Friedlaender

Canada, 4,767 E. J. & W. Gold-

smith

Germany, 98 H. C. Everett

Holland, 1,304 E. J. and W. Gold-

smith

" 1,325 Little & Johnston

Germany, 592 Ekman Pulp Co.

" 600 Moreton Cox Brs.

Norway, 2,805 W. Balchin

Holland, 536

Zinc Oxide—

Holland, 75 brls. M. Ashby, Ld.

" 50 cks. J. Matton

U. States, 100 M. Ashby, Ld.

LIVERPOOL.

Week ending November 22nd.

Acetate—

Nantes, 165 sks.

Asbestos—

Montreal, 2 bgs. Broadbridge

& Co.

Barytes—

Antwerp, 34 cks. 50 bgs.

Rotterdam, 12 158

Boracite—

Panderna, 500 t.

Carbon Black—

New York, 100 brls. B. R. Vickers

& Sons

Castor Oil—

Genoa, 6 cs. Evans, Sons,

& Co.

" 10 Calvert Brs.

" 5 Gianeni & Co.

Marseilles, 22 cks. J. J. Mack & Son

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Caustic Soda—

Antwerp, 8 dms.

Cod Oil—

Hamburg, 5 brls.

Colours—

Antwerp, 8 brls.

Rotterdam, 20 cks. 4 cs.

Cottonseed Oil—

New York, 99 brls.

Cream of Tartar—

Marseilles, 15 cks.

Barcelona, 10 pps.

Creosote—

Boston, 2 kgs. H. B. St. George

Dyestuffs—

Argols

Patras, 24 pkgs. M. D. Frangopulo

& Co.

Oporto, 34 cks. German Bank of

London

Cochineal

Gr. Canary, 5 bgs. Widow,

Duranty & Son

Cutch

Rangoon, 924 bxs.

Extract

Antwerp, 15 cks.

" 75 J. T. Fletcher

& Co.

Madder

Rotterdam, 8 cks.

Orchella

Lisbon, 11 bgs. Edwards Brs.

Hamburg, 10 bls.

Shumac

Bordeaux, 50 bls.

Barcelona, 75 bgs.

Valonia

Patras, 400 bgs.

" 404 G. E. Spiropulo

" 200 M. D. Frangopulo

Syria, 232 G. T. Scrinii

Smyrna, 3,120 kntls. Barry Brs.

680 bgs.

Farina—

Trieste, 100 bls.

Fiume, 100 bgs.

Glucose—

New York, 599 brls.

" 12 P. Haggiteris

" 200

Infusorial Earth—

Hamburg, 34 bgs.

Iron Oxide—

Trieste, 13 brls. Gabani Brs.

Ochre—

Marseilles, 22 brls.

Rouen, 23 cks.

Paint—

Boston, 50 cs. M. Nicol & Co.

Phosphate—

Antwerp, 200 bgs.

Phosphate Rock—

Pt. Royal, S. C., 3,250 t.

Potash—

Rouen, 109 cks. Co-op. W'sale

Society, Ld.

Potassium Bichromate—

Baltimore, 50 cks. W. H. Cole

& Co.

Pyrites—

Huelva, 1,591 t. Matheson & Co.

Salt—

Hamburg, 700 bgs.

Saltpetre—

Hamburg, 25 kgs. 4 cks.

Soap—

Bari, 80 cs.

Naples, 40 P. Behrends

Marseilles, 55

Boston, 4 J. Thompson

Sodium Bichromate—

Baltimore, 50 cks. W. H. Cole

& Co.

Starch—

Antwerp, 113 cs. J. T. Fletcher

" 200

Rotterdam, 67 6 crts.

Stearine—

Antwerp, 169 bgs. 1 ck.

Sulphur Ore—

Huelva, 1,440 t. Matheson & Co.

Tannic Acid—

Hamburg, 8 cks.

Tartar—

Bordeaux, 22 cks.

Tartaric Acid—

Bordeaux, 2 cs.

Marseilles, 5 cks.

Hamburg, 2

Rotterdam, 3

Ultramarine—

Antwerp, 20 cs.

Hamburg, 40 D. Currie & Co.

" 8 cks.

Rotterdam, 9 4

Yarnish—

Boston, 43 bxs. W. H. Staynes

& Smith

Waste Salt—

Hamburg, 5,856 bgs. 680 t.

White Lead—

Rotterdam, 62 cks.

Wood Pulp—

Oporto, 1,000 bls. Crona Wood

Pulp Co.

Drammen (Barrow), 372½ cub. ftms.

Kellner Partington

Paper Pulp Co.

Montreal, 4,750 bds. A. Price & Co.

Rotterdam, 108 bls. 50 pkgs.

Zinc Ashes—

Marseilles, 12 cks.

Zinc Oxide—

New York, 150 brls.

Antwerp, 18

Zinc White—

Antwerp, 25 cks.

Rotterdam, 100

MANCHESTER.

Week ending November 22nd.

Acetic Acid—

Rotterdam, 2 cks. 12 balloons.

Ammonium Acetate—

Rotterdam, 3 brls.

Antimony Oxalate—

Rotterdam, 2 cks.

Barium Chloride—

Rotterdam, 12 cks.

Hamburg, 11

Barytes—

Antwerp, 20 cks. 50 bgs.

Carbonic Acid—

Rotterdam, 20 tubes.

Castor Oil—

Antwerp, 26 brls.

Chemicals (otherwise undescribed)

Rouen, 47 cks.

Chrome Alum—

Rotterdam, 15 cks.

Colours—

Hamburg, 5 cks.

Antwerp, 25 32 cs.

Rotterdam, 5 bxs 41 45 134 brls.

Cream of Tartar—

Rotterdam, 20 kgs.

Cryolite — Copenhagen, 2 cks. Wilson, Sons, & Co., Ltd. Dextrine — Stettin, 110 bgs. Wilson, Sons, & Co., Ltd. Dyestuffs — Alizarine Rotterdam, 13 pks. 15 cks. W. & C. L. Ringrose Madder Rotterdam, 10 cks. Wilson, Sons, & Co., Ltd. Sumac Trieste, 24 bls. Wilson, Sons, & Co., Ltd. Palermo, 1,125 bgs. " " 1,400 Farina — Stettin, 648 bgs. Wilson, Sons, & Co., Ltd. Ghent, 364 bxs. " " 100 bgs. 25 Glucose — Rotterdam, 40 bgs. Hutchinson & Son New York, 100 brls. Wilson, Sons, & Co., Ltd. 500 Kaolin — Rotterdam, 20 cks. Reckitt & Sons Lead Acetate — Rouen, 7 cks. Rawson & Robinson Manure — Ghent, 203 t. 300 bgs. Wilson, Sons, & Co., Ltd. Ochre — Rouen, 11 cks. Pitch — Hamburg, 18 cs. Wilson, Sons, & Co., Ltd. Plumbago — Rotterdam, 1 ck. W. & C. L. Ringrose Pumice Stone — Messina, 3 cs. Wilson, Sons, & Co., Ltd. 40 brls. Saltpetre — Hamburg, 20 cks. Bailey & Leatham Soap — Trieste, 3 cs. Wilson, Sons, & Co., Ltd. Starch — Antwerp, 88 cs. Bailey & Leatham Bremen, 2,204 40 Stearine — Antwerp, 64 bgs. Hornby & Needler Rotterdam, 25 bls. Wilson, Sons, & Co., Ltd. Antwerp, 101 bgs. " " Tallow — St. Petersburg, 10 cks. Wilson, Sons, & Co., Ltd. New York, 60 pks. " " Tartar — Bordeaux, 4 cks. Rawson & Robinson Tartaric Acid — Rotterdam, 2 cks. W. & C. L. Ringrose Turpentine — Libau, 52 brls.	Ultramarine — Rotterdam, 7 pks. W. & C. L. Ringrose Waste Salt — Hamburg, 508 bgs. Furley & Co. " 750 qty Bailey & Leatham White Lead — Rotterdam, 72 cks. W. & C. L. Ringrose " 29 Hutchinson & Son Antwerp, 50 Bailey & Leatham Wood Pulp — Drammen, 2,050 bls. Helsingfors, 256 J. Good & Sons " 52 Furley & Co. " 91 45 pcls. Zinc White — Rotterdam, 20 cks. Hutchinson & Son GLASGOW. <i>Week ending November 29th.</i> Acetate of Lime — New York, 1,502 bgs. Aluminium — New York, 1 bx. Aniline — Rotterdam, 6 cs. 7 cks. J. Rankine & Son Aniline Colours — Hamburg, 60 cks. 3 cs. Aniline Oil — Rotterdam, 1 ck. J. Rankine & Son Arachide Oil — Rotterdam, 4 cks. J. Rankine & Son Barytes — Rotterdam, 11 cks. J. Rankine & Son " 40 pcls. Bone Meal — Bombay, 2,000 bgs. Boracic Acid — Hamburg, 2 cks. Carbonic Acid — Rotterdam, 15 tubes. Castor Oil — Marseilles, 10 cs. 199 brls. Antwerp, 57 cks. Caustic Soda — Antwerp, 2 dms. Chemicals (otherwise undescribed) Hamburg, 1 ck. Colours — Hamburg, 20 cks. 2 cs. J. Rankine & Son Rotterdam, 2 kgs. " " 21 pcls. Cottonseed Oil — New York, 100 brls. Cream of Tartar — Marseilles, 10 cks. 8 brls. Oporto, 7 Bordeaux, 20 Dyestuffs — Alizarine Rotterdam, 62 cks. J. Rankine & Son " 64 pcls. Extracts Antwerp, 4 cks. Indigo Rotterdam, 1 cs. J. Rankine & Son Myrabolams Bombay, 670 bgs.	Farina — Hamburg, 149 bgs. Fluor Chrome — Rotterdam, 1 bx. Glucose — Hamburg, 40 bgs. New York, 250 brls. Lead Acetate — Rotterdam, 36 cks. J. Rankine & Son Nitrite — Rotterdam, 4 cks. Ochre — Marseilles, 4 brls. Pitch — Marseilles, 26 brls. Potash — Rotterdam, 32 cks. Potassium Carbonate — Hamburg, 63 cks. Sodium Prussiate — Antwerp, 2 cks. Starch — Antwerp, 50 bgs. 100 pcls. Rotterdam, 3 8 cs. Sulphate of Barytes — Antwerp, 63 cks. Tallow — New York, 50 trcs. Hamburg, 3 brls. Tar — New York, 240 brls. Varnish — New York, 5 pkgs. 10 brls. Waste Salt — Hamburg, 112 t. 711 bgs. White Lead — Rotterdam, 28 cks. J. Rankine & Son " 27 Wood Pulp — Kragero, 4,800 bls. Brown, Stewart & Co. Hamburg, 500 Bergen, 1,636 Christiania, 504 Zinc Oxide — Antwerp, 10 cks. Zinc Sulphite — Rotterdam, 6 brls. Zinc White — Rotterdam, 10 cks. J. Rankine & Son " 150 TYNE. <i>Week ending November 24th.</i> Alum Earth — Hamburg, 36 cks. Tyne S. S. Co. Barium Chloride — Hamburg, 7 cks. Tyne S. S. Co. Barytes — Rotterdam, 48 cks. Tyne S. S. Co. Colours — Hamburg, 2 tins. 1 ck. 9 brls. Tyne S. S. Co. Antwerp, 2 brls. " " Kieselguhr — Bergen, 98 bgs. Limestone — Antwerp, 3 crts. 1 cs. Tyne S. S. Co. Plumbago — Antwerp, 3 bgs. Tyne S. S. Co.	Salt — Hamburg, 400 t. Tyne S. S. Co. 20 bgs. " " Saltpetre — Hamburg, 7 cks. Tyne S. S. Co. Soap — Rotterdam, 10 cs. Tyne S. S. Co. Sodium Silicate — Rotterdam, 1 ck. Tyne S. S. Co. Starch — Rotterdam, 80 bas. Tyne S. S. Co. Tartaric Acid — Rotterdam, 4 cks. Tyne S. S. Co. Waste Salt — Hamburg, 171 t. White Lead — Antwerp, 28 brls. Tyne S. S. Co. Wood Pulp — Laurvig, 60 bls. GOOLE. <i>Week ending November 21st.</i> Aniline Colours — Hamburg, 12 cks. Aniline Oil — Rotterdam, 2 cks. Antimony — Boulogne, 7 cks. Caoutchouc — Boulogne, 7 cks. Dyestuffs — Alizarine Rotterdam, 713 pcls. Extracts Ghent, 25 cks. Rouen, 55 Logwood Hamburg, 205 tcs. Dyestuffs (otherwise undescribed) Rotterdam, 176 pcls. Boulogne, 60 cks. 7 cs. Ghent, 21 t. Farina — Rotterdam, 25 bgs. Hamburg, qty. Antwerp, 10 Glucose — Dunkirk, 310 bgs. Potash — Dunkirk, 60 dms. 2 cks. Calais, 42 Saltpetre — Hamburg, 40 kgs. Tartaric Acid — Rotterdam, 2 cks. Waste Salt — Hamburg, 703 t. 598 cks. 1,516 bgs. Zinc Oxide — Antwerp, 20 brls. GRIMSBY. <i>Week ending November 24th.</i> Aniline Dyes — Antwerp, 13 cks. 37 pcls. Hamburg, 16 39 Chemicals (otherwise undescribed) Antwerp, 2 cks. Hamburg, 11 12 cs. Colours — Antwerp, 7 cks. 1 cs. Hamburg, 11 2 Dyestuffs (otherwise undescribed) Dieppe, 34 cks. Saltpetre — Rotterdam, 170 bgs.
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EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.	Ammonia (Liquid) —	Hiogo, 1 t. 34 Yokohama, 3 102	Jersey, 27 375
<i>Week ending November 28th.</i>	Bombay, 1 c. 66 Rangoon, 3 cs. 22	Ammonium Chloride — Salonica, 2 t. 5 c. 80 Trebizonde, 15 28 Algoa Bay, 3 6	Amorphous Phosphorus — Hong Kong, 3 cs. 642
Acids — Shanghai, 20 cs. 621	Ammonium Carbonate — Toronto, 3 cks. 26 Calcutta, 8 cs. 13 Bombay, 10 10 c. 48 Demerara, 2 6 Rouen, 2 t. 70 Cologne, 4 15 160 St. John's, N.B. 5 9	Ammonium Nitrate — Sydney, 4 t. 0 c. 245 Ammonium Sulphate — Mauritius, 10 t. 138	Arsenic — Wellington, 1 t. 6 c. 617 Amsterdam, 12 cks. 38 Otago, 2 31 Napier, 2 5 40 Algoa Bay, 1 16
Alkali — Greytown, 15 t. 1 c. 89 Alexandria, 3 5 10 Algoa Bay, 5 4 122 Philadelphia, 1 5 25 East London, 11 13			

Bisulphite of Lime — Calcutta, 2 t. 14 c. £50	Algoa Bay , 7 c. 25	Soda Crystals — Trinidad, 1 t. 12 c. £5	Naples , 6 t. 61
Boracic Acid — Sydney, 1 t. 5 c. £43	Lyttelton , 3 2 15	Cape Town , 2 12 c. 5	Newport News , 23 24
Borax — Copenhagen, 1 t. 18 c. £41	Wellington , 15 51	Soda Salts — N. York, 25 cks. £170	Pt. Elizabeth , 40 bxs. 7
Carbolic Acid — Boston, 1 cs. £10	Adelaide , 4 300	Sodium Bicarbonate — Demerara, 1 t. 10 c. £13	Boracic Acid — Antwerp, 1 t. 9 c. £46
Phosphoric Acid — Halifax, 6 3 c. 90	Melbourne , 5 341	Singapore , 3 6	Boston , 2 64
Bombay , 5 pkgs. 15	Sydney , 4 10 307	Brisbane , 10 11	New York , 35 cks. 225
Natal , 3 t. 2 9	Disinfectants — Algoa Bay, 2 t. 2 c. £18	Algoa Bay , 2 1 19	Borax — New York, 125 cks. £465
Algoa Bay , 8 8	London, Ont. , 19 40	Sodium Carbonate — Natal, 6 c. £5	Ibrail , 11 c. 11
Buenos Ayres , 3 2 45	Calcutta , 510 drs. 43	Sodium Tartrate — Sydney, 10 c. £29	Ghent , 5 2 q. 5
Hioho , 2 194	Bombay , 78 pkgs. 59	Sulphur — Wellington, 2 t. £16	Antwerp , 6 t. 5 130
Carbonic Acid Gas — Rosario, 4 cs. £23	Sydney , 34 cs. 221	Baradoes , 4 8 c. 30	Batoum , 1 3 3 24
Caustic Potash — Wanganui, 2 t. £50	Cape Town , 955 pkgs. 520	Sulphuric Acid — Cape Town, 10 t. 2 c. £44	Tiflis , 1 4 3 65
Caustic Soda — Cape Town, 13 c. £7	Antwerp , 10 cks. 40	E. London , 20 cs. 38	Rotterdam , 14 5 294
Mauritius , 1 t. 15 16	Brisbane , 8 cs. 19	Penang , 5 5 23	Malaga , 13 1 20
Lyttelton , 12 98	Otago , 7 c. 10 cs. 81	Superphosphate — Jersey, 42 t. £171	Boston , 10 199
Melbourne , 6 15 81	Rangoon , 5 10	Tartaric Acid — Auckland, 5 c. £24	Philadelphia , 15 279
Sydney , 2 43	Natal , 17 pkgs. 12	Christchurch , 1 t. 5 c. £24	Aalborg , 11 11
Philadelphia , 14 10 138	Diainfectants and Ammonia — Bombay, 5 pkgs. £17	Lyttelton , 10 46	Calcium Chloride — Rangoon, 3 t. £7
Natal , 3 3 161	Guano — Dunkirk, 94 t. £503	Canterbury , 3 15	Camphor — Alexandria, 1 ck. 1
New Orleans , 57 1 620	Gypsum — Jersey, 5 t. £8	Wellington , 1 5	Carbolic Acid — Cadiz, 4 c. 2 q. £7
Chemicals (otherwise undes.) — Bombay, 11 c. 5 cs. £102	Hypsulphite of Lim — Cape Town, 3 kgs. £2	Brisbane , 10 48	Genoa , 19 3 51
Cape Town , 22 dms. 4 kgs. 36	Manure — Natal, 5 c. £91	Calcutta , 1 10 4 cs. 94	Colombo , 1 t. 11 1 26
Shanghai , 9 cs. 2 t. 4 c. 238	Mordeaux , 30 t. 220	Adelaide , 1 10 135	Hamburg , 3 2 7
Adelaide , 20 kgs. 1 t. 98	Morlaix , 51 10 440	Sydney , 2 194	Yokohama , 1 10 74
Chloride of Lime — Algoa Bay, 160 drs. £32	Boston , 99 10 217	Tin Crystals — Barbadoes, 2 t. £132	New York , 5 7 2 274
Buenos Ayres , 1 t. 6 c. 26	Philadelphia , 2 10 45		Caustic Potash — Pernambuco, 9 c. 3 q. £14
Chloroform — Brisbane, 2 cs. £22	Cape Town , 200 1,200		Mexico , 9 c. 12
Citric Acid — Brussels, 6 c. £35	La Guayra , 5 49		Pt. Elizabeth , 14 20
Natal , 1 7	Demerara , 100 1,100		
Barcelona , 10 64	Cape Town , 4 6		
Sydney , 2 t. 200	Jersey , 302 1,538		
Bonn , 1 ck. 32	Nitric Acid — Madas, 18 cs. £24		
Yokohama , 3 19	Oxalic Acid — Melbourne, 1 t. 7 c. £44		
Hamburg , 10 2 127	Phosphate — Cape Town, 30 t. 14 c. £101		
Dusseldorf , 2 63	Auckland , 20 52		
Canterbury , 1 kg. 7	Phosphorus — Melbourne, 11 cs. £100		
Coal Products — Alizarine, 45 cks. £603	Adelaide , 2 kgs. 21		
Boston , 10 cs. 560	Potash — Melbourne, 1 t. 11 c. £100		
Reval , 41 kgs. 226	Wellington , 14 45		
Bombay , 41 kgs. 226	Potash Crystals — Lyttelton, 6 c. £44		
Aniline — Boston, 2 kgs. £10	Otago , 16 93		
Aniline Dyes — Sydney, 4 cs. £14	Potash Salts — Auckland, 2 t. 19 c. 445		
Aniline Oil — Genoa, 10 drs. £275	Potassium Bicarbonate — Philadelphia, 2 t. 5 c. £57		
Anthracene — Rotterdam, 537 cks. £3,647	Yokohama , 2 10 15		
Dusseldorf , 335 4,200	Potassium Chlorate — Madras, 11 kgs. £19		
Benzol — Rotterdam, 12 dms. £126	Bombay , 4 cs. 28		
Boulogne , 25 cks. £75	Sydney , 10 c. 25		
Coal Tar Dyes — Boston, 9 pkgs. £143	Hamburg , 10 kgs. 26		
Creosote — Dieppe, 23,500 gals. £123	Potassium Nitrate — Jersey, 109 t. 19 c. £574		
Galveston , 6,500 brls. 3,104	Brisbane , 10 11		
Naphtha — Boulogne, 6 cks. £37	Potassium Sulphate — Jersey, 4 t. 19 c. £54		
Melbourne , 5 cs. £10	Precipitated Phosphate — Mauritius, 35 t. £39		
Naphthaline — Hamburg, 12 cks. £98	Salicylic Acid — Toronto, 5 cs. £207		
Hong Kong , 1,026 cks. 669	Saltetre — Porto Alegre, 11 c. £12		
Dunkirk , 1,442 t. 2,489	Seville , 1 t. 2 24		
Alexandria , 250 brls. 73	M. Video , 8 9		
Tar — Boston, 200 brls. £100	Vigo , 3 14 82		
Beira , 60 dms. 25	Port Lyttelton , 1 6 24		
Mauritius , 5 cs. 11	Brisbane , 1 6 8		
Algoa Bay , 180 drs. 15	Adelaide , 1 6 22		
Port Elizabeth , 275 dms. 15	Sheep Dip — Punta Arenas, 30 cs. £56		
Tar Oil — Boulogne, 70 cks. £60	Danedin , 400 1,200		
Toluol — Rotterdam, 20 puns. 50 pkgs. £573	Lyttelton , 400 1,200		
Copper Sulphate — Alexandria, 7 t. £120	Falklands , 2 t. 106		
Melbourne , 5 73	Dunedin , 13 t. 17 c. 63 dms. 2 cs. 196		
Colombo , 9 c. 8	Buenos Ayres , 6 t. 18 c. 184		
Dunedin , 1 15	Sydney , 500 cs. 6 1,659		
Canterbury , 1 16	Natal , 900 dms. 25 cs. 256		
Christchurch , 2 30	Algoa Bay , 15 t. 8 c. 344		
Paris , 5 2 103	Cape Town , 12 3 400		
Cream of Tartar — Auckland, 1 t. £80	Slag — Stettin, 100 t. £200		
	Soda — Toronto, 2 t. 5 c. £20		
	Toronto , 2 t. 10 16		
	Sydney , 2 t. 13 7		
	Melbourne , 2 t. 13 7		
	Fremantle , 1 t. 7 7		

Coal Products—

Aniline Colours		
Constantinople, 2 cs.		
Aniline Oil		
Genoa, 9 dms.		
Naples, 1 tin		
Aniline Salts		
Bombay, 7 cs.		
Boston, 28		
Constantinople, 1 ck		
Piræus, 7 cks.		
Pitch		
Kurrachee, 20 cks.		
Volo, 2 t. 17 c.		
Alexandria, 100 brls.		
Tar		
Calao, 10 brls.		
Kurrachee, 20 cks		
Sierra Leone, 20 hf.-brls.		
Lagos, 12		

Cobalt Oxide—

Leghorn, 2 q. £10	
Genoa, 2 17	

Copperas—

Melbourne, 10 t. £16	
Calcutta, 12 25	

Copper Sulphate—

Piræus, 1 t. 1 c. 1 q. £15	
Paermo, 10 6	
San Francisco, 30 19	
Tampico, 12 10	
Trieste, 1 14	
Bahia, 1 1 2	
Adelaide, 15 230	
Melbourne, 42 10	
Vera Cruz, 7 6	
Amsterdam, 2 2 3	
Leghorn, 1 6 3	
Genoa, 8 4 1	
Naples, 9 6	

Disinfectants—

Bombay, 1 t. 4 c. £8	
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Dried Blood—

Las Palmas, 3 t. £25	
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Farina—

Pernambuco, 30 sks.	
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Guano—

Seville, 7 t. 7 c. £66	
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Guano Phosphate—

Barcelona, 9 t. 19 c. 2 q. £48	
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Magnesia—

Havre, 32 cs.	
Lisbon, 10	
St. Nazaire, 3	
Santos, 10	
Malaga, 2 brs.	
Manila, 4	

Magnesium Citrate—

Malaga, 1 c. £11	
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Magnesium Sulphate—

Honolulu, 10 cs.	
Rio de Janeiro, 100 kgs.	

Manure—

Madeira, 2 t. 10 c. £12	
Teneriffe, 40 1 q. 312	
Valencia, 30 6	
Lagos, 1 70	
Stockholm, 13 14 2	
	90

Muriatic Acid—

Manaos, 2 c. £3	
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Nitric Acid—

Rangoon, 1 c. £4	
Manaos, 1 5	

Oxalic Acid—

Rotterdam, 17 c. £27	
Montreal, 3 t. 15 110	

Paint—

Bahia, 1 brl. 40 kgs.	
Buguma, 16	
Cadix, 20 dms.	
Calcutta, 23 cks. 3 240	
Guayaquil, 10	
Hio, 38	
Honolulu, 20	
Lagos, 180	
Para, 10	
Payta, 2	
Puerto Cabello, 12	
St. Jago de Cuba, 1	
Abonnema, 3	
Accra, 32	
Antwerp, 8 7	
Cameroon, 10	
Fiume, 32	
Greytown, 20 13 cs.	
Halifax, 20	
Havre, 13 50	
Hong Kong, 6	
Malta, 96	
Manila, 18	
Monrovia, 250 20	

New York, 2	
Pt. Said, 9	
Sierra Leone, 2	
Trieste, 24	
Valparaiso, 10	
Warri, 1 8	

Painters' Colours—

Bahia, 3 brls. 5 cs.	
Corfu, 4	
E. London, 3 15 kgs. 2 dms. 1	
Guantanamo, 7	
Lisbon, 1 bx. 1 ck. 2	
Maranham, 30 8 1	

M. Video, 3	
N Orleans, 200	
Pernambuco, 10 3 1	
Portland, M., 16	
Santos, 30	
Savanna, 2	
Trinidad, 5 tcs. 304	

Paraffin Wax—

Vera Cruz, 18	
Baltimore, 430	
Bombay, 50	
Bremen, 100 bgs. 3 dms.	
B. Ayres, 3 dms.	
Calcutta, 17 3 3 cks.	
Gibraltar, 6	
Gijon, 100	
Hamburg, 4 brls. 6	
Malaga, 4	
Prevesa, 6	
St. John's, N'fd., 4 10	

Phosphate—

Batoum, 18 bgs. £12	
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Phosphorus—

Cape Town, 2 t. 2 c. 2 q. £12	
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Plumbago—

Phillipville, 1 cs. £55	
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Potassium Bichromate—

Piræus, 1 t. 1 c. £47	
Seville, 1 ck. 15	

Potassium Chlorate—

Hio, 15 t. £724	
Rouen, 1 4 c. 12	
Carril, 1 49	
Odesa, 7 5	
Rotterdam, 7 4	
New York, 25 4	
Naples, 15 44	
Manaos, 5 14	

Potassium Oxalate—

Boston, 4 t. 18 c. 2 q. £100	
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Potassium Prussiate—

Naples, 1 t. £92	
Valleyfield, 1 5 c. 118	

Salt—

Adelaide, 205 t.	
Antwerp, 134	
Boston, 220	
Calcutta, 2,261	
Cape Town, 25	
E. London, 1	
Gd. Bassam, 15 10 c.	
Manoh, 75	
Melbourne, 24	
Newcastle, 20	
N. Orleans, 600	
Newport News, 610	
Portland, 100	
Rotterdam, 183	
San Francisco, 189	
Santos, 11	
Warri, 5	
Winnebuh, 2	
Abonnema, 20	
Akassa, 300	
Algoa Bay, 8	
Appam, 10	
Azim, 10	
Bakana, 40	
Baltimore, 150	
Bathurst, 5	
Brishane, 50 cs.	
Cabenda, 50	
Cameroon, 55	
C. C. Castle, 5	
Cape Lopez, 18	
Galveston, 999	
Lagos, 20	
Loango, 12	
Noqui, 8	
Port Royal, 2,400	
Quittah, 150	
St. John's, N'fd., 10	
Salt Pond, 5	
Savannah, 600	
Sette Camme, 10	
Sherbro, 50	
Trinidad, 28	
Ukaka, 10 14	

Valparaiso, 5	
Yokohama, 1 5	

Salt Cake—

Newport News, 69 t. £90	
New York, 100 3 c. 1 q. 75	
Philadelphia, 10 4 3 8	
Gijon, 56 15 3 99	
Newport News, 99 126	

Sheep Dip—

M. Video, 2 t. 4 c. £60	
Durban, 10 20	
B. Ayres, 4 10 118	

Soap—

Accra, 140 bxs. 2 cs.	
Alexandria, 26 21	
Algoa Bay, 2,820 27	
Antwerp, 412	
Appam, 100	
Baltimore, 19	
Barbadoes, 562	
Bathurst, 7	
Bombay, 419	
Bonny, 350	
Calcutta, 13	
Cape Coast, 112	
Boston, 1,650	
Curacao, 335	
Durban, 100	
E. London, 1,515	
Havre, 350	
Las Palmas, 950	
Limassol, 1	
New York, 250	
Opobo, 2,000	
Pernambuco, 3 cks.	
Pt. Elizabeth, 450 115	
Pt. Natal, 1,970 170	
Rangoon, 2	
Rio Hacha, 300	
Sierra Leone, 50	
Teneriffe, 589	
Barranquilla, 4 pkgs.	
Cameroon, 100	
Constantinople, 26	
Gibraltar, 490	
Gd. Bassam, 150	
Half Jack, 50	
Hamburg, 999	
Lagos, 25	
Malta, 1 pcl.	
Manila, 1	
Mussers, 10	
Penang, 12	
Phillipville, 50	
Portland, Or., 34	
Rotterdam, 250	
St. John's, N'fd., 20	
San Fernando, 200	
San Francisco, 31	
Singapore, 6	
Trinidad, 500 4	
Valparaiso, 1	

Soda Alkali—

Bilbao, 34 brls.	
Havre, 20	
Leghorn, 56	
Baltimore, 34 cks.	
Corfu, 40	
Lisbon, 64	
Malta, 7	
Salonica, 7	
San Sebastian, 32	
Seville, 100	
Volo, 10	

Soda Ash—

Barcelona, 46 cks.	
Boston, 181 300 tcs.	
Calcutta, 2,000 bgs. 100 brls. 39	
Corfu, 50	
Genoa, 100	
Hamburg, 25 4	
Odesa, 18	
Rotterdam, 100	
Stockholm, 9	
Trenton, 13	
Antwerp, 120	
Baltimore, 6,941 184 299	
Keyrout, 30	
Brishane, 294	
Copenhagen, 700	
Ghent, 250	
Havana, 9	
Kobe, 75 sks.	
Maranham, 20 100	
N. Orleans, 25	
Newport News, 120	
New York, 4,500 835	
Oporto, 9	
Philadelphia, 4,556 66 423	
Piræus, 50	
Portland, Or., 24	
Rio de Janeiro, 50 60	
Seville, 107	
Singapore, 50	
Talcahuano, 25	
Venice, 100	

Soda Crystals—

Lisbon, 16 cks.	
Portland, 300 brls.	
Alexandria, 20 50	
Bahia, 20	
Bombay, 140 140 125 kgs.	
Boston, 15	
Gibraltar, 15	
M. Video, 50	
New York, 980 500	
Palermo, 34	
Philadelphia, 280	
Valparaiso, 100 bgs. 70	

Sodium Biberate—

Antwerp, 9 brls.	
B. Ayres, 1 ck.	
Callao, 30 cs.	

Sodium Bicarbonate—

S. John's, N.B., 500 bgs.	
Adelaide, 50 10 kgs.	
Aleppo, 15 20 cks.	
Antwerp, 467	
Baltimore, 60	
Bombay, 1,500	
Boston, 20	
Bremen, 150	
Brisbane, 1,000	
Calcutta, 30	
Cartagena, Sp., 10	
Ghent, 40 3	
Hamburg, 281	
Kurrachee, 40	
Newcastle, 600	
N. Orleans, 1,002	
New York, 313	
Odesa, 45	
Paris, 12	
Portland, Me., 20	
Pt. Natal, 20	
S. John's, N'fd., 45 brls. 10	
Seville, 17 40 10	
Singapore, 10	
Stockholm, 60 5	
Trieste, 50	
Trinidad, 20	
Valparaiso, 200	
Varna, 50	
Vera Cruz, 20	
Volo, 10	
Yokohama, 320	

Sodium Bichromate—

Ghent, 32 cks.	
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Sodium Bisulphate—

Constantinople, 10 cks.	
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Sodium Carbonate—

New York, 168 brls.	
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Sodium Chlorate—

Genoa, 10 kgs.	
Antwerp, 20	
Boston, 56 brls.	

Sodium Frussiate—

Boston, 32 cks.	
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Sodium Silicate—

Volo, 10 brls.	
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Sodium Stannate—

Barcelona, 5 brls.	
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Sodium Sulphate—

Rosario, 15 brls.	
Philadelphia, 100	

Sulphur—

E. London, 3 t. 12 c. £15	
Boston, 300 12 976	
Pernambuco, 1 8 2 q. 8	

Sulphuric Acid—

Rangoon, 1 c. 1 q. £6	
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Superphosphate—

Seville, 7 t. 6 c. £21	
Oporto, 4 14 2 q. 13	
Las Palmas, 65 227	

Turpentine—

Bremerhaven, 5 brls.	
Hamburg, 50 dms.	
Sierra Leone, 1	

Ultramarine—

Yokohama, 7 brls.	
-------------------	--

Yarnish—

Alexandria, 2 cs. 50 dms.	
Genoa, 2 9 cks. 1 hampr.	
Lisbon, 1	
Seville, 7 2 brls.	
Valparaiso, 2	
Barcelona, 4 dms.	
New York, 4 cks.	

White Lead—

Barranquilla, 100 kgs.	
Campana, 40 cks.	

Whiting—

Halifax, 20 brls.	
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Zinc Chloride—

Bombay, 5 t. 4 c. £66	
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MANCHESTER.

Week ending November 29th.

Alum—	
Alexandria,	120 brls.
Ammonium Carbonate—	
Hamburg,	1 ck.
Antwerp,	1 kg. 4 cs.
Aniline Dyes—	
Rio de Janeiro,	6 cs.
Aniline Oil—	
Antwerp,	2 dms.
Rouen,	15
Creosote—	
Rouen,	15
Linseed Oil—	
Malta,	4 brls.
Paint—	
Malta,	36 kgs. 2 brls.
Pitch—	
Antwerp,	474 t. 17 c.
Sodium Arseniate—	
Rouen,	11 brls.
Spent Oxide—	
Antwerp,	177 t.
Sulphuric Acid—	
Rio de Janeiro,	14 cs.
Tar Oil—	
Antwerp,	10 dms.
Toluol—	
Rouen,	50 brls.

HULL.

Week ending November 24th.

Alkali—	
Bergen,	2 cks.
Ammonium Sulphate—	
Rouen,	864 bgs.
Bleaching Powder—	
Bremen,	20 cks.
Odessa,	16
Stettin,	61
Caustic Soda—	
Bergen,	4 dms.
Bari,	55
Hango,	2 cs.
Wyburg,	38 cks. 25 kgs.
Chemicals (otherwise undescribed)	
Amsterdam,	4 cks.
Bergen,	3 cs.
Constantinople,	50
Christiania,	37 4 24 slbs.
Copenhagen,	5 65 btl.
Gothenburg,	22 5
Helsingfors,	12
Hango,	5
Hamburg,	17 55 43 pks.
Konigsberg,	7
Odessa,	5
Riga,	100
Rouen,	10 10 9
Stettin,	26 1
Trieste,	9
Cottonseed Oil—	
Antwerp,	385 c.
Bremen,	123
Christiansand,	21
Copenhagen,	65
Gothenburg,	134
Hamburg,	1,205
Konigsberg,	202
Rouen,	2,262
Stavanger,	85
Stockholm,	100
Stettin,	86
Trieste,	202
Dyestuffs (otherwise undescribed)	
Antwerp,	80 bgs.
Gothenburg,	6 cks.
Linseed Oil—	
Aalesund,	12 c.
Bergen,	17
Christiansund,	35
Christiansand,	17
Christiania,	456
Drontheim,	18
Hamburg,	649
Rouen,	7
Stavanger,	43
Stockholm,	437
Mineral White—	
Bergen,	50 bgs.
Naphtha—	
Antwerp,	6 cks.
Dunkirk,	25 brls.

Painters' Colours—

Antwerp,	17 cks. 2 cs.
Amsterdam,	9
Bergen,	1
Christiania,	2
Copenhagen,	19 1
Dunkirk,	1
Gothenburg,	2 5
Hamburg,	40
Konigsberg,	55
Odessa,	50
Rouen,	12 1 35 pkgs
Stettin,	2
Wyburg,	40 1
Pitch—	
Antwerp,	140 t.
Christiansand,	25 brls.
Copenhagen,	50 t.
Salt—	
Drontheim,	1 ck.
Slag—	
Christiania,	508 bgs.
Soap—	
Stettin,	1 cs.
Tallow—	
Rouen,	26 cks.
Stockholm,	25
Tar—	
Amsterdam,	12 cks.
Bremen,	2
Stockholm,	2 dms.
Varnish—	
Copenhagen,	2 cks.
Rouen,	2
Stettin,	1 cs.

GLASGOW.

Week ending November 29th.

Ammonia—	
B. Ayres,	17½ c. £35
Ammonium Chloride—	
Italy,	4 t. 11½ c. £104
Ammonium Sulphate—	
Baltimore,	35 t. 16½ c. £450
Borax—	
Japan,	1 t. 3¾ c. £23. 13s.
Caustic Soda—	
Halifax,	23 t. 11½ c. £186
Chemicals (otherwise undescribed)	
Portland,	£28
Coal Products—	
Aniline Salts	
New York,	6 t. 13 c. £256
Naphtha	
Bordeaux,	6 t.
Pitch	
Calcutta,	7 t. 7½ c. £25
Baltimore,	50 10
Christiania,	16
Konigsberg,	50
Portland,	98
New York,	52 8
Chili,	24 14
Bordeaux,	1,050 32
Tar	
Colombo,	£45
Madras,	23
Calcutta,	267
Portland,	125
New York,	38 t. 6 c. 124
Christiania,	68 brls. 34
St. John's, N'd.,	12
Copperas—	
Calcutta,	38 t. 4 c. £57
Dyestuffs—	
Cutch	
S. John's, N'd.,	1 t. 8 c. £37
Extract	
Halifax,	7 t. 17½ c. £219
New York,	2 18½ 38
Lead Acetate—	
Calcutta,	3 t. 4¾ c. £86
Linseed Oil—	
Calcutta,	2 t. 4 c. £81
Alexandria,	6 6 120
Shanghai,	4 2½ 80
Chili,	1 28
Magnesium Sulphate—	
Bombay,	30 t. £116
Alexandria,	5 10 c. £22. 10s.
Manure—	
B. W. Indies,	5 t. 2½ c. £45. 15s.
Italy,	58 12½ £456
Ochre—	
Alexandria,	10 t. £50
Paint—	
Colombo,	£104

Calcutta,	37
B. W. Indies,	1 t. 5½ c. 91
B. Ayres,	£23. 17s. 676
Alexandria,	2 14 637 10s.
Chili,	3 2½ 643
Painters' Colours—	
Calcutta,	670
Bombay,	35
Portland,	156
St. John's, N'd.,	24
Paraffin Wax—	
Alexandria,	1 t. 7 c. £38
Italy,	157 3,141
Fiume,	10 13
Antwerp,	13½ 22
Christiania,	3 12 97
Bordeaux,	4 24 104
Potassium Bichromate—	
Bombay,	1 t. 1½ c. £65
Calcutta,	1 1½ 48
Italy,	28 5 1,220
Fiume,	1 12½ 65
Portland,	16 13 661
New York,	16 15½ 666
Antwerp,	5 1 202
Gothenburg,	10 10½ 291
Christiania,	13 cks. 212
Potassium Prussiate—	
New York,	9 t. ¾ c. £768. 18s.
Rosin—	
Bombay,	250 brls. £176
Sheep Dip—	
Fremantle,	1 t. 6¾ c. £50
B. Ayres,	24 1½ 158
Slag—	
Rouen,	462 t. £161
Soap—	
B. W. Indies,	6 t. 18½ c. £123
Sodium Bichromate—	
Italy,	23 t. 16½ c. £222
New York,	22 3 725
Sodium Phosphate—	
New York,	5 t. 14 c. £61
Sulphuric Acid—	
Madras,	£240
Tallow—	
Rouen,	15 t. 17 c. £443
Christiania,	4½ 4
Turpentine—	
Port Limon,	14½ c. £25
Alexandria,	2 t. 4 44
White Lead—	
Fremantle,	4 t. 16½ c. £90
Calcutta,	6 10 140
Cocanada,	10 10
B. Ayres,	2 13 45
Shanghai,	3 2½ 53

TYNE.

Week ending November 24th.

Alkali—	
Rouen,	3 t. 3 c.
Aluminous Cake—	
Copenhagen,	50 t. 10 c.
Newfairwater,	7 10
Ammonia—	
Barcelona,	12 c.
Ammonium Sulphate—	
Frederikshavn,	2 t. 10 c.
Valencia,	194 13
Antimony—	
Antwerp,	3 t.
Hamburg,	5
Copenhagen,	5 c.
Barcelona,	1
Arsenic—	
Rouen,	11 c.
Barcelona,	2 t. 17
Gothenburg,	1 18
Barium—	
Antwerp,	10 t. 1 c.
Barytes—	
Rouen,	25 t.
Bleaching Powder—	
Harlingen,	50 t. 3 c.
Antwerp,	25 16
Hamburg,	65 11
Rouen,	21 5
Trieste,	2 10
Konigsberg,	37 18
Gothenburg,	25 3
Christiania,	15 2
Trondhjem,	15
Caustic Soda—	
Antwerp,	5 t. 16 c.
Alicante,	13 1
Rouen,	5

Trieste,	20 17
Barcelona,	70 3
Gothenburg,	8 4
Christiania,	8 14

Colours—

Copenhagen,	c.
Litharge—	
Hamburg,	1 t. 3 c.
Copenhagen,	1 4

Magnesia—

Antwerp,	24 c.
Hamburg,	18
Valencia,	4
Frederikshavn,	10

Oxalic Acid—

Konigsberg,	1 t. 13 c.
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Paint—

Antwerp,	11 c.
Rouen,	19
Christiania,	3

Potassium Chlorate—

Trieste,	3 c.
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Salammoniac—

Barcelona,	2 t. 8 c.
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Slag—

Rouen,	174 t.
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Soda—

Rouen,	7 t. 3 c.
Gibraltar,	13 19
Aalborg,	5 7
Christiania,	5
Bergen,	5 19
Trondhjem,	16 1

Soda Ash—

Trieste,	13 t. 6 c.
Konigsberg,	147 10
Gothenburg,	194 11

Sodium Sulphate—

Gothenburg,	275 t. 1 c.
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Sulphur—

Antwerp,	120 t.
Gothenburg,	150
Newfairwater,	60

GOOLE.

Week ending November 21st.

Benzol—	
Rouen,	30 cks.
Chemicals (otherwise undescribed)	
Boulogne,	2 cks.
Hamburg,	142 pkgs.
Rouen,	100
Coal Products (otherwise undes.)—	
Boulogne,	2 cks.
Hamburg,	10
Rouen,	50
Colours—	
Ghent,	3 cks.
Dyestuffs (otherwise undescribed)	
Ghent,	1 cs.
Hamburg,	40 cks.
Manure—	
Boulogne,	118 bgs.
Hamburg,	200
Harburg,	8,290
Rouen,	330
Bruges,	161
Pitch—	
Dunkirk,	327
Antwerp,	556
Rouen,	101

GRIMSBY.

Week ending November 24th.

Chemicals (otherwise undescribed)	
Dieppe,	7 cks. 1 cs. 120 btl.
Hamburg,	33
Rouen,	12 dms. 4
Coal Products (otherwise undes.)—	
Abo,	155 cks.
Dieppe,	65 1 cs.
Dyestuffs (otherwise undescribed)	
Dieppe,	1 tin.
Farina—	
Antwerp,	40 cks.
Painters' Colours—	
Hamburg,	1 cs.
Rouen,	4 cks.
Pitch—	
Antwerp,	38 t.
Salt—	
Antwerp,	300 t.
Soap—	
Cape Haiti,	50 cs.

PRICES CURRENT.

WEDNESDAY, DEC. 5th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25% and 40%	per cwt.	7/-	&	10/9
Glacial	"	50/-		
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3½
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
(Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1¼
Nitrous	"	0	0	1¼
Oxalic	nett	0	0	3¼
Phosphoric, 1750°	"	0	0	11
Picric	"	0	1	0
Sulphuric (fuming 50%)	per ton	15	10	0
(monohydrate)	"	5	10	0
(Pyrites, 168°)	"	3	0	0
(free from arsenic, 145°)	"	1	5	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	"	0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)	"	4	17	6
Alumina Sulphate (pure)	"	4	17	6
Aluminoferri	"	2	7	0
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	4
" 880=28° B.	per lb.	0	0	3
" 24° B.	"	0	0	2¼
Carbonate	nett	0	0	3¼
Muriate	per ton	23	10	0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
Nitrate	per ton	41	0	0
Phosphate	per lb.	0	0	10½
Sulphate (grey) London	per ton	11	15	0
(grey) Hull	"	11	13	9
Aniline Oil (pure)	per lb.	0	0	5¼
Aniline Salt	"	0	0	4¼
Antimony	per ton	33	10	0
(tartar emetic)	per lb.	0	0	9½
(golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	10	0
Carbonate (native)	"	3	5	0
Sulphate (native levigated)	"	45/-	to	75/-
Bleaching Powder, 35%	nett	7	5	0
Liquor, 7%	"	3	10	0
Bisulphide of Carbon	"	11	5	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	17/6	to	30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20%	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30% A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90% nominal	per gallon	0	1	1½
50/90	"	0	1	2
Carbolic Acid (crystallised 40°)	per lb.	0	0	5¼
(crude 60°)	per gallon	0	1	5½
Creosote (ordinary)	"	0	0	2
(filtered for Lucigen light)	"	0	0	2½
Crude Naphtha 30% @ 120° C.	"	0	0	5¼
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	13	0
Solvent Naphtha, 90% at 160°	per gallon	0	1	1½
Lucigen and "Wells" Oils	"	0	0	2½
Copper	per ton	40	0	0
Sulphate	"	14	15	0
Oxide (copper scales)	"	39	0	0
Glycerine (crude)	"	15	0	0
(distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	10	17	6
Litharge Flake (ex ship)	"	13	10	0
Acetate (white)	"	25	0	0
brown	"	15	10	0
Carbonate (white lead) pure	"	16	0	0
Nitrate	"	20	0	0

Lime, Acetate (brown)	per ton	6	5	0
(grey)	"	9	17	6
Magnesium (ribbon and wire)	per oz.	0	2	3
Chloride (ex ship)	per ton	2	10	0
Carbonate	per cwt.	1	17	6
Hydrate	per ton	17	0	0
Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	"	17	15	0
Borate	per cwt.	2	15	0
Ore, 70%	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	1	10
Naphtha (Wood), Solvent	"	0	3	0
Miscible, 60° O.P.	"	0	3	4½

Oils:—		£	s.	d.
Cotton-seed	per on	19	5	0
Linseed	"	21	10	0
Petroleum, American	per gallon	0	0	5½
Stearine	per ton	26	0	0
Phosphorus (yellow)	per lb.	0	2	1
(red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
Bichromate	nett per lb.	0	0	4½
Carbonate, 90% (ex ship)	per ton	16	15	0
Chlorate	per lb.	0	0	5½
Cyanide, 98%	"	0	2	2
Hydrate (Caustic Potash) 80/85%	per ton	21	10	0
(Caustic Potash) 75/80%	"	20	0	0
(Caustic Potash) 70/75%	"	19	10	0
Nitrate (refined)	per cwt.	1	2	6
Permanganate	per cwt.	3	2	6
Prussiate Yellow	per lb.	0	0	10
Sulphate, 90% (ex ship)	per ton	9	15	0
Muriate, 80% (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	3½
Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
Carb. (refined Soda-ash) 48%	nett per ton	4	15	0
(Caustic Soda-ash) 48%	"	4	0	0
(Carb. Soda-ash) 48%	"	4	0	0
(Alkali) 58%	"	3	17	6
(Soda Crystals)	"	2	5	0
Acetate (ex-ship)	"	14	5	0
Arsenate, 45%	"	11	0	0
Chlorate	per lb.	0	0	7¼
Borate (Borax)	net, per ton	20	0	0
Bichromate	per lb.	0	0	3¼
Hydrate (77% Caustic Soda) (f.o.b.) net pr. ton	10	5	0	
(74% Caustic Soda)	9	5	0	
(70% Caustic Soda)	8	5	0	
(60% Caustic Soda)	7	5	0	
(60% Caustic Soda, cream) (f.o.b.)	7	2	6	
Bicarbonate	"	5	12	6
Hyposulphite	"	5	10	0
Manganate, 30%	"	16	0	0
Nitrate (95%) ex-ship Liverpool	per cwt.	0	8	9
Nitrite, 98%	per ton	29	0	0
Phosphate	"	15	0	0
Silicate (glass)	per ton	5	2	6
(liquid, 100° Tw.)	"	4	5	0
Stannate, 40%	per cwt.	3	2	9
Sulphate (Salt-cake)	per ton	0	17	6
(Glauber's Salts)	"	1	5	0
Sulphide	"	8	10	0
Sulphite	"	5	7	6
Strontium Hydrate, 100%	"	8	10	0
Sulphocyanide Ammonium, 95%	per lb.	0	0	7
Barium, 95%	"	0	0	5
Potassium	"	0	0	7½
Sulphur (Flowers)	per ton	7	5	0
(Roll Brimstone)	"	5	5	0
Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26%)	"	2	7	6
Tallow	"	24	10	0
Tin Crystals	per lb.	0	0	6
English Ingots	"	66	10	0
Zinc (Spelter)	per ton	14	2	6
Chloride (solution, 100° Tw.)	"	5	7	6

THE CHEMICAL TRADE JOURNAL

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5.

SATURDAY, DECEMBER 15, 1894.

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ADVERTISEMENT.

MAN WANTED by a Technical Chemist, who has passed a course in the Chemical School in Zurich; has worked in several Laboratories, and is fully competent to undertake every kind of chemical work. Highest references. Thorough knowledge of German and English, and shorthand (Pitman's).—Address, M.M., Chemical Office, Manchester.

Notices.

ON JANUARY 19TH, 1895, OUR
ANNUAL SPECIAL ISSUE
Will Appear as Usual.

THE **ABLE NUMBER** will, in addition to the ordinary contents of the *Journal*, contain

ORIGINAL ARTICLES

Interest to Chemical, Soap, Paint, and Varnish Manufacturers, and users of Chemical Plant, &c.

Also contain a number of Articles of general interest to Metallurgists, Chemists, and the Chemical Trade, including a

COMPLETE REVIEW OF 1894;

Article Illustrated with Original Photographs on

MINISCENCES OF JOHN DALTON,"

&c., &c.

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CURRENT TOPICS.

THE CHEMICAL EXTRACTION OF GOLD.

IT is a well known and undisputed fact that chemistry has made many and great changes in the conduct of numerous industries. Moreover, some of the changes effected have also been attended with increased profits. Though it is an easy matter to call to mind many instances in support of this statement, we think one of the instances least likely to be mentioned would be the part chemistry has played in increasing economy in gold production.

The matter has been brought somewhat prominently before the notice of chemists of late, a fact which affords a fitting opportunity for briefly recording the advance which has been made during the past four or five years.

The chemical process for the extraction of gold which has latterly found most favour is that known as the cyanide process, which, further, has been chiefly employed in the Rand district. Now, a comparison of the output of gold in this district during the past four years shows a very marked and steady increase. In 1890 the total production was about 494,870 ounces, the largest output for any one month (December) being rather more than 50,300 ounces. This year the total production will certainly be four times as great, since there is every prospect of the year's output being at least 2,000,000 ounces.

The increase has been very steady, but it has been sure. The figures for each month since January, 1890 (when the production was 35,030 ozs.), have, with very few exceptions, shown an advance. Thus, taking only the thousands of ounces, including the figures given above for 1890, the next year started at 53,000 ozs., and closed with 80,000. In January, 1892, the production was 84,000 ozs., the year closing with 117,000. In 1893 there was a temporary retrogression, the January output being 108,000 ozs., but by the end of the year the production for the month was 146,000 ozs., thus showing the usual increment of approximately 30,000 ozs., which it will be noticed has characterised the production since 1890. Coming to the present year, January brought an output of 149,814 ozs., each successive month showing a steady increase up to May, till in September, the record of 176,707 ozs. was reached. October showed a slight decline, but November was only 1,707 ozs. behind the record in September.

How great a part the cyanide process has played in furthering this steady increase can be learned from the monthly reports of the various companies, which give the number of ounces obtained by milling and by the cyanide process. Before proceeding to consider this matter it is, we think, only right to point out that, apart from the amount of gold extracted by chemical treatment being very considerable, the greater part is obtained from tailings, and, therefore, represents gold which has actually been recovered, and which would have been lost entirely in the ordinary milling process.

Coming to the actual quantity of gold contributed to the total production by the process of chemical extraction, the above-named returns almost invariably show that the proportion of recovered gold compares satisfactorily with the gold produced by the stamps. It is by no means an uncommon thing to find that from a third up to one-half of the gold produced in the month has been extracted chemically. Out of a total of 4,138 ozs. at one mine, 1,852 ozs. were obtained by the cyanide process. In another case, 45 stamps crushed 4,000 tons of ore, yielding 1,748 ozs., while 7,000 tons of ore were treated with cyanide, yielding 1,000 ozs., the same number of days being worked in each case. Thus in a few cases the amount of chemically-extracted gold comes near the output of the stamps.

In regard to the additional profits which attend chemical extraction, we have a case in point recorded in our columns this week where virtually two-thirds of the profit were due to gold obtained from tailings by cyanide treatment. So that, where by milling only a 4 per cent. dividend could have been paid, the shareholders received a dividend a good deal nearer to 12 per cent. Considering that the extra 8 per cent. was due to gold which by the ordinary mechanical means could not have been recovered, there can be no doubt that the gold mining industry owes much to chemistry.

ANOTHER SMOKE PREVENTER.

To the many ideas which have been put into practice for the prevention of smoke, yet another contrivance has been added, this time to that class of arrangements which profess to bleach smoke.

There is one commendable feature about the contrivance, and that is, it is so simple it scarcely seems worthy of the name of a contrivance, in the accepted meaning of the word. All that is done is to carry a pipe which can convey either live or exhaust steam, to within about four feet of the top of the chimney.

Though such an arrangement sounds very primitive, the report of eight months' working is said to be satisfactory. In no case was any smoke emitted of a deeper hue than light grey or straw coloured. Formerly the chimney had given trouble through smoking. This sounds very promising, but the description of the principle upon which the smoke is prevented is so peculiar that we have mentioned the matter here in case anyone interested in smoke prevention cares to put the claims of the arrangement to the test. It would certainly be a very simple thing to do.

The explanation is this. The steam issuing into the chimney at the top causes a vacuum, and simultaneously a slight down-draught. In addition to this, the soot becomes saturated with moisture, and so falls to the bottom of the shaft. It is not quite clear, however, whether the updraught of the chimney is entirely overcome by the steam jet, and if not, whether the soot does not become dry again on its downward course by passing through the upcurrent of warm, if not hot, air and smoke, and so get carried forcibly out of the chimney. On the other hand, though the explanation may not hold good, it would be interesting to know if others obtained results as good as those claimed, because if they did it would not matter what the explanation was so long as the smoke was prevented.

COKE OVEN PATENTS.

In this week's issue we give the reasons on which their Lordships of the Judicial Committee of the Privy Council based their recommendation for the extension of the Semet-Solvay Coke-oven Patent in England for five years. The

points of Patent Law procedure raised in the case are fully dealt with.

Their Lordships had no difficulty in concluding that there was enough merit in the invention to justify an extension, provided other circumstances were favourable. Nor did their Lordships think the invention was lacking in public utility because the inventors had not been adequately recompensed.

Toucing the possible effect of the foreign patents lapsing before the English patent, and so placing the British public at a disadvantage, their Lordships did not think there was much, if any, competition between British and Foreign coke producers, or manufacturers of articles in the production of which coke is used.

There are two points, however, upon which their Lordships do not appear to have been over enlightened. In speaking of the increased yield of coke and products of distillation by means of the invention, they apparently were not cognisant of the results of Mr. Farrell in connection with the yield of tar and sulphate of ammonia as compared with other ovens. And, again, in reference to the prospects of competition, their Lordships only discuss the matter in its relation to coke, no mention being made of the possibility of competition in by-products becoming a serious matter for British producers.

THE DEVELOPMENT OF THE MANUFACTURE OF GUN-COTTON.

LAST week Prof. V. Lewes delivered the second of the winter series of Cantor Lectures at the Society of Arts, the subject being the improvements which have taken place in the manufacture of gun-cotton since its discovery by Schonbein, with special reference to English service gun-cotton and its manufacture, to nitro glycerine, and to dynamite. There was a good attendance. Professor Lewes said that gun-cotton differed very widely from gunpowder, inasmuch as it was composed of chemical compounds in which they had amalgamated substances which were combustible and the body which was to supply the explosive. It was early in 1832 that Braccanott first recognised the effect that certain organised substances could be treated with nitric acid in such a way as to increase their power of combustion, and later Pelouze, the celebrated French chemist, demonstrated this by the saturation of filtering paper with nitric acid, but this never got beyond the stage of forming a very pretty drawing-room firework. In 1845 Schonbein discovered that by treating cotton fabrics with strong nitric acid they underwent a great change, and were given an enormously increased rate of burning, and subsequently he combined the admixture of sulphuric and nitric acid. He then conceived the idea that this might be utilised for making an explosive, because the whole product was combustible, and within a few years the manufacture of gun-cotton was not only an accomplished fact, but had extended to almost every country in Europe, whilst the idea of a smokeless powder had already taken possession of the military officer's mind. Then came the disastrous explosion at Dartford, followed a year later by an equally disastrous one in France, which gave rise to a feeling of unrest in the public mind, and certain committees were appointed to investigate the manufacture and utility of the explosive. They reported that it was too bulky and that it inflicted great strain upon the breeches of the guns used to fire it, and these facts practically for a time brought its manufacture to an end two years after its discovery. But Von Lenk, an Austrian, continued to believe in its future, and he continued to conduct experiments in the light of the reports which had been made, and early in 1862 the British Association took up the matter, and published a report showing the improvements which Von Lenk had made, and explained the reasons which brought about the explosions, and Sir F. Abel was shortly afterwards able to introduce into England the present method of making gun-cotton, which was now one of the most valuable and safest of known explosives. Professor Lewes described in detail the elaborate methods of producing the service gun-cotton of to-day, and the remarkably numerous tests applied in order to eliminate the slightest element of danger in its make and storage. What led to the earlier explosions in its manufacture was the presence of small traces of acid, which slowly built up the heat necessary to set up combustion. That acid was now completely removed by the most careful and elaborate processes of washing and boiling and drying and cutting. In earlier days the gun-cotton to be exploded had to be enclosed and the flame placed in contact with the compound itself, but some time ago Mr. E.

wn, of Woolwich, discovered a method of setting up combustion of detonators, or what was termed sympathetic waves, and it was discovered that this system of detonation was equally effective in-cotton in its wet state, a state which was more highly explosive than dry. These discoveries at once made gun-cotton not only one of the most important, but the safest, of all our explosives, and it was a notable fact that the blowing up of a magazine would not of itself set off the gun-cotton, which would receive no injury from the disaster. Mr. Lewes next briefly treated of the manufacture of nitro-cellulose. He mentioned that at first the effects of the compound upon the human body were engaged in its production were deleterious, but after a time they seemed to absolutely thrive upon it.

Legal Intelligence.

JUDICIAL COMMITTEE OF THE PRIVY COUNCIL.

(Before Lords Watson, Hobhouse, Shand, and Davey.)

SEMET AND SOLVAY'S PATENT.

THEIR Lordships proceeded to give their reasons for their report to Her Majesty on the petition of M. Louis Victor Semet, M. Ernest Solvay, and the Société Solvay et Compagnie for extension of letters patent. The case raised important considerations of patent law and practice.

The petition was recently heard before a Board, consisting of Lord Watson, Lord Hobhouse, Lord Macnaghten, Lord Shand, and Sir James Cockburn. (*C.T.J.* 391, p. 395.)

Lord Watson now said: The letters patent of which an extension is now issued to the petitioners, Semet and Solvay, who were the first to apply, on November 17, 1880. At that date the invention was not known in any foreign country, but patents were subsequently obtained in France, Germany, Austria, Belgium, the United States, and Spain. With the exception of the last two, these patents are now in force. The French patent will expire in the course of next year, the German in 1896, the Austrian in 1897, and those for Belgium and the United States in 1900. The Russian and Spanish patents have in consequence of the failure of the patentees to comply with a condition of their exclusive privilege, which required that the invention be brought into actual operation within a time limited. The petitioners have assigned their whole interest in these patents to the other petitioners, the Société Solvay et Compagnie, a concern in which they are shareholders. The petitioner Solvay is a director of the company, and the petitioner Semet is employed by the company, and receives as remuneration a percentage of the profits derived from the use of the patent. The patent is for improvements in apparatus for coking and gasifying coal, and its chief merit appears to consist in the substitution of clay tubes for the brickwork flues, forming part of the structure of the kilns or ovens, which were previously in use for carrying off the products of combustion. The advantage of the substitution is two-fold. In the first place, it prevents the escape of these products from the flues, through leakage, to the detriment of the coke; and, in the second place, it permits the repair of the flues without taking down the brickwork of the oven. Although the invention is apparently a simple one, it is proved to be of considerable commercial utility. It only effects a saving in the cost of maintaining the coking apparatus, but it yields a much larger percentage of coke, with a consequently increased amount of the products of distillation. Their Lordships have, in these circumstances, had no difficulty in coming to the conclusion that the invention is of sufficient merit to justify them, in the circumstances of the case, in recommending the extension of the patent. That neither the patentees nor the company has been engaged in bringing their invention under the notice of the public in this and in other countries, have been adequately remedied is established beyond doubt. The accounts produced and shown a large debit balance; and the cross-examination of the petitioners' witnesses by counsel for the Crown and their observations on the evidence merely went to show that the pecuniary loss of the petitioners may ultimately prove to be less than they anticipate. In the circumstances the fact that such losses have been sustained during the currency of the patent might go far to show that the patented invention was not of public utility, but their Lordships are satisfied that there is no room for such an inference in the present case. The invention appears to them to be one which from its very nature is reasonably to be expected to come at once, or within a short time, into general use. Its adoption necessitates the destruction of the old and the erection of new apparatus, and will therefore in all probability be gradual as the old fashioned apparatus wears out. Their Lordships' attention was very properly directed by the Attorney-General to the enactments of section 25 of the Patent Law Amendment Act of 1852, which apply to cases where a foreign invention has not been patented in the United Kingdom, and also to a series of

decisions of this Board, in which it was held that cases in which the foreign invention was first patented in this country, though not within the letter, were within the spirit of these enactments. Their Lordships do not consider it necessary to notice these decisions in detail. In this case the patent is dated before the passing of the Patents, Designs, and Trade Marks Act, 1883, and had it not been the first granted in any country the question might have arisen whether, having regard to the terms of section 113 of the later statute, their Lordships were bound to deal with the case as falling under section 25 of the Act of 1852. But their Lordships do not think that, prior to the passing of the Act of 1883, this Board had laid down any rule to the effect that cases in which the British patent was the first were within the spirit of section 25 in such sense that its enactments ought to be strictly applied to them. The decisions already referred to go no further than to establish that, in dealing with such cases, the lapse of patents for the same invention in foreign countries and the policy of the Legislature, as indicated in section 25, were circumstances to be taken into account in considering whether a prolongation ought to be granted. Thus "*In re Bett's Patent*" (1, Moore N.S., 49) three patents had been obtained, in Britain, France, and Belgium, the British being the first of them; and this Board advised Her Majesty to grant an extension for five years, although the Belgian patent had expired before the date of the application for renewal. Their Lordships are of opinion that, inasmuch as section 25 of the Act of 1852 does not apply to it, the present case must be dealt with under the provisions of the Act of 1883, and therefore on the footing that section 25 has been repealed by the Legislature. The rule laid down for their guidance by section 25 (4) of the later Act is to the effect that "the Judicial Committee shall, in considering their decision, have regard to the nature and merits of the invention in relation to the public, to the profits made by the patentee as such, and to all the circumstances of the case." The practical result of that legislation is that the Committee are no longer deprived of the right to recommend, in their discretion, the extension of a patent which is not the first in cases where one or more foreign patents for the same invention have lapsed or expired. But the lapse or expiry of foreign patents remains, as it always has been, one of the circumstances which must necessarily be considered. It is a circumstance which may prejudicially affect the interests of the inhabitants of the United Kingdom; and it is therefore one which must be taken into account, along with the other facts of the case, where there is no patent for the invention outside the United Kingdom, as well as in cases where foreign patents exist or have existed. In cases where the prolongation of a patent would place the inhabitants of Great Britain and Ireland at a disadvantage in competition with the subjects of a foreign State, that circumstance must militate strongly against its extension. Whether the disadvantage, either certain or probable, ought to outweigh the right of the patentee to obtain a renewal upon other grounds must always be a question of degree, to be decided according to the special circumstances of each case. In the present case the evidence does not suggest that there is much or any appreciable competition in the markets of the world between coke of British and of foreign manufacture, or between articles of British and foreign manufacture which depend for their manufacture upon the use of coke as fuel. Then in Russia and Spain, the two countries in which the patents taken out for the present invention have lapsed, the evidence shows that the invention is not used. In these circumstances their Lordships have come to the conclusion that the patent ought to be extended for a term of five years, and they have humbly advised Her Majesty to that effect.

THE STANDARD OIL COMPANY AGAIN.—The officials of the Standard Oil Company, including Mr. Rockefeller, Mr. Flagler, and others having been indicted by the Court of Texas under the Trust Law, their extradition has been requested from the Governor of New York.

SULPHATE OF AMMONIA AS SUGAR-CANE MANURE.—Valuable testimony to the efficiency of sulphate of ammonia as a manure for sugar-cane lands is (according to a contemporary) contained in the official report on the agricultural work carried on during the years 1891 and 1892 in the Botanical Gardens of British Guiana. This work was mainly directed to improving the local cane-sugar industry, which is understood to be largely a question of manuring. The results of the manurial experiments during the first year only are available; and these go to show that nitrogen, in the forms of sulphate of ammonia, nitrate of soda, and dried blood, excited a favourable influence upon the yield of the sugar-cane, and was doubtless the main manurial constituent which really governed the incremental yield. Where applied in quantities capable of supplying not more than 40 lbs. of nitrogen to the acre, sulphate of ammonia and nitrate of soda were of about the same value—both being better than dried blood; but where more than 40 lbs. of nitrogen per acre was applied, sulphate of ammonia gave distinctly the better results. About 2½ cwt. per acre appeared to be the best quantity to use. Superphosphate of lime was an improvement when it came to be added to nitrogen and potash manurings.

SOCIETY OF CHEMICAL INDUSTRY.

MANCHESTER SECTION.

THE usual monthly meeting of this section was held on Friday, December 7th, at the Victoria Hotel, R. F. Carpenter, Esq., being in the chair.

Before proceeding to the usual business of the meeting, Ivan Levinstein, Esq., addressed the section on the new diphtheria cure. His excuse for bringing the matter before the members of the society was that the preparation was made in chemical works. The question, he said, was first discussed in 1839, when Löffler isolated the genuine diphtheric bacillus. He then briefly described the Behring theory of the formation and action of Antitoxin. He next referred to the numerous laboratory experiments which were made by Behring previous to the introduction of Antitoxin in hospitals. In the first instance a small measured quantity of the diphtheric poison from Löffler diphtheria bacillus was injected into a guinea pig when death followed; then a calculated quantity of Antitoxin was injected into another guinea pig, and a quarter of an hour afterwards the same quantity of the diphtheric poison, which previously proved a fatal dose, was injected, when no symptoms of diphtheria developed. Finally, a number of cubic centimetres of the diphtheric poison was poured into a test tube, to this were added so many c.c.'s of Antitoxin. This mixture was injected into another animal, when again no symptoms of diphtheria or any other symptoms were noticeable. These experiments prove without doubt, in Mr. Levinstein's opinion, that the Antitoxin neutralises and makes the true diphtheric poison of Löffler's bacillus innocuous. How far these remarkable results obtained with animals will be confirmed in treating human beings suffering from true diphtheria, and how far no other ill effects may follow each treatment, only time can definitely decide. Several chemists are at present engaged in the investigation of the chemical constitution of Antitoxin, and if they should be successful in their labour there is no reason why Antitoxin may not be one day synthetically produced without the intermediate use of animals. Mr. Levinstein then showed 3 bottles, each containing about 10 c.c.'s of fluid healing serum, bottle 1 with 600 immunity units, bottle 2 with 1,000, bottle 3 with 1,500 units. The serum had been prepared by the Farbwerke Hoechst a/M, under the personal supervision of Professor Behring and Professor Ehrlich. He explained the value of a unit of immunity by stating that the original healing serum was made of such a strength that 1 c.c. neutralized 10 c.c. of diphtheric poison. This 1 c.c. of Antitoxin equalled one unit of immunity. By injecting small but increasing quantities of poison into animals the serum was gradually concentrated, until it attained to the strength of the 3 samples he submitted to the meeting.

One of the small bottles, containing 10 c.c., costs about 48s., and he urged the making of the serum in this country on a fairly large scale, so as to be able to cheapen it and place it within the reach of hospitals, so that more extended experiments might be made. Touching the statement that Antitoxin was a chemical, he would only say that very many able and eminent chemists and biologists held this view, there being absolutely no living organisms in Antitoxin.

Mr. W. Thomson then explained to the meeting some apparatus he had brought, amongst which was an improved burrette and burrette stand, a handy condenser, and one two other useful pieces of laboratory apparatus.

The Hon. Secretary then read a paper, sent by Mr. P. S. Gilchrist, of the U.S.A., on "Pipe Columns for Saving Chamber Space in the Manufacture of Sulphuric Acid." This paper consisted mainly of a description of the present plant employed in the Southern States for the manufacture of vitriol, and the advantages claimed for the use of pipe columns, the action of which was explained by the author. One of the advantages claimed was an increase of 28% in the production of vitriol.

In the discussion which followed the reading of the paper, Mr. Geo. E. Davis said he had listened with very great interest to the paper, but was strongly of opinion that the inventors have not made out their case. A few months ago he carefully studied some figures that appeared from the pen of Mr. Gilchrist, in the *Journals of the American Chemical Society*, for November, 1893, and July, 1894, and they appeared to be identical with those given in the paper which had just been read. The figures of the Savannah Guano Co. were not, however, given in the aforesaid *Journals*, and one could not very easily criticise such things at a moment's notice. He should, however, like to tell the meeting what opinion he had formed of the Wando and the Darlington figures that have been published. He did not think it was right to compare a new mode of manufacture with any such antiquated methods as working without nitre recovery. The latest and most improved installations should be used for comparison, and he felt sure that we had in this country many vitriol works (working without the aid of pipe columns) giving results that would evidently astonish the inventors of these appliances.

In the old-fashioned days, in which he began his career as a vitriol maker (working without nitre recovery), 24 cubic feet per lb. of sulphur per 24 hours was considered the normal working space requisite, and if any less than this was provided, the nitre consumption was abnormal, while on the other hand, if the space was increased, very little (if any) good was experienced. It was, moreover, well known at that time that the more nitrous the chambers were kept the greater was the work that could be done in a given space. He could give instances in support of this. In works A, with six chambers, and 34 cubic feet per lb. of sulphur, the nitre consumption was 8.2%. Works B, six chambers, 22 cb. ft. per lb, 8.4% nitre. Works C, 20 cb. ft. per lb, 9.0% nitre. Each of these was the average of six months' working. According to the author's paper, he understood that the new works of the Darlington Phosphate Company had no system of nitre recovery, and that their consumption of nitre was 13% when working with about 16 cb. ft. per lb. of sulphur; this fact strengthened his argument. He would now pass to the results of the working of the Savannah Guano Company, where they had pipe columns and Glover and Gay-Lussac towers. The description seemed a little ambiguous. He understood the author to say, "for a time the plant worked below 15 cb. ft.," and the nitre consumption was 3.5%. To his mind there was nothing startling in the foregoing work. To his knowledge there was a works in Widnes in 1876, using as little as 2.9% of nitre, but as he could not be sure of the exact chamber space he refrained from quoting it further. Of one works, however, he did know, wherein 63 tons of pyrites were burned weekly in three chambers, working with 14 cb. ft. of chamber space per lb. of sulphur, wherein the nitre consumption was only 1.8%. This was not accomplished by the aid of pipe columns, but by the provision of ample absorbing space which he held was the solution of the problem of how much acid could be made in a given chamber space. He had designed and reorganised a good many vitriol plants during the past twenty years, and there was no difficulty in working with a normal amount of nitre in as low a chamber space as 8 cb. ft. per lb. of sulphur, and without pipe columns, a result twice as good as the lowest capacity mentioned in the paper. Of course, starting with a normal chamber space, the percentage of nitre necessary would increase as they overload the chambers with work, and of this he had had very good experience. In one works, with three chambers, the percentage of nitre used, over a period of three months, when working with 15 cubic feet per lb. of sulphur, was 3.4. For a further period, when the space was reduced to 10 cubic feet, the nitre consumption was 5%; while when the pyrites was further increased, so that the space was reduced to 8 cubic feet per lb. of sulphur the nitre consumption ran up to 7.1%. If the absorbing space had been increased as the chamber space was reduced, the nitre consumption would have remained nearly normal. But it must not be forgotten that as the chamber space was reduced, so the percentage of oxygen in the waste gases increased, and the problem of absorbing the nitrous gases from a weaker mixture had to be encountered. This was not, even at the present moment, sufficiently recognised. He verily believed that the importance of the the pipe column had been over estimated, the *crux* was the complete absorption of all the nitrous gases that it is possible to absorb, and if this was done, the amount of vitriol that could be made in a given chamber space was simply astonishing to practitioners of the old school. Every vitriol maker knew that if the chambers were underworked a very pale straw colour only was requisite in the final chamber, while when the chambers were "pressed" it was necessary to work them much darker in colour; in fact, working with a normal chamber space, nitrous gases equal to 200lbs. of nitrate of soda have to be sent in to the chambers for every ton of sulphur entering at the same time. In a plant working without nitre recovery, this quantity must all be "potted;" but where absorbing and denitrating towers existed, the 200lbs. (let us call it x) was made up of two quantities; y , the amount potted; and z , that introduced through the medium of the Gay-Lussac acid. With an abnormal chamber space, a factor n would readily allow one to see what should be potted, and how much should be introduced into the Glover tower, as nitro-sulphuric acid. If n equals that factor, and x = the total nitre to be introduced, then:—

$$x = n + y + z$$

$$\text{When } n = 1, \quad x = 200.$$

The paper bore some reference to the necessary draught for chambers. It was quite clear that no constant formula could be laid down for an abnormal chamber space; still with a normal chamber space he firmly believed no better rule could be followed than the old-fashioned one of working the damper, so that the gases in the last chamber "scarcely knew their own mind," i.e., are almost in equal balance with the atmospheric pressure.

Dr. C. O. Weber then read a paper on "A New Class of Lake Pigments," in which he described his experiments on the preparation of a compound from certain proteids which would form stable lakes with aniline dyes. He had found that the lakes formed with aniline colours and albuminoids were four times faster than Barium lakes. The usual votes of thanks terminated a well attended and successful meeting.

LIVERPOOL SECTION.

The meeting of this Section was held at University College, Liverpool, on the 5th inst., when a paper was read by Mr. Watson on "The calculation and Composition of Blast Furnace Charges as applied to the smelting of Lead and Silver Ores." The paper dealt with siliceous ores containing lead and silver, and the mode of slagging off siliceous material was first discussed, including complete calculation of the addition of iron ores, etc. necessary; afterwards the reader of the paper considered the question of bullion formation in the same connection. In some parts of the country there is great necessity for more scientific methods of working, and towards the attainment of such an end the paper is calculated to prove useful.

NOTTINGHAM SECTION.

A meeting of the above section was held on Wednesday, the 12th inst., at University College, when Mr. F. J. R. Carulla read a paper on "Recent Experiences when Putting Up a Steam Boiler." It might at first be thought that it would be more proper to have brought the paper before some other society, but the author gave the following as a reason why chemists should take up the subject in earnest. Apart from the progress of the gas engine, which is superseding steam even in the heavy engineering trades, he went on to say that when electricity, obtained from gas at the coal pits, was used to move our railway trains, and Atlantic liners, were "urged by motors receiving their energy from storage batteries," the manufacturing chemist would be left as the sole steam user.

The paper dealt chiefly with points connected with the erection of a small Lancashire boiler, 18ft. long by 7ft. diameter. Several controversial points were introduced, such as the much-debated exhaust steam injector as a safe instrument for feeding boilers, and the value of Galloway tubes. It would be generally thought that the time was past for doubting the usefulness of the latter. In regard to the objections raised against the exhaust steam injector, Mr. Carulla gave the testimony of certain engineers who wrote to his firm (The Sharon Chemical Co., Limited) as follows: "Respecting allowing grease to get into the boiler, we do not consider this of any moment. We took out in the early part of the year a boiler put down in 1860, which had thus been 34 years in use, and during that time we had fed it in all possible ways, oil always being present in the feed water."

The question was also raised in the paper of making 3" the standard thickness for fire-bricks, instead of 2½" as is now the rule. Regarding this point, Mr. J. M. Gibson, of the Buckley Brick and Tile Co., Limited, sent a useful communication, in which he said: "Fire-bricks 2½" thick, called London bricks, are principally used there, and at the cement works on the Medway, and in Ireland. These we stock, and are 8½" x 4¼" x 2¼". Another size is 9" x 4¾" x 2½", used by ironworks, gasworks, chemical works, etc. The 3" bricks are 9" x 4¾" x 3", and are also used by the works just named and by contractors, and they are in all cases superseding the 2½" for three reasons:

- 1st. Because they make fewer joints.
- 2nd. Because they work, or bind, with common bricks.
- 3rd. Because a bricklayer will do more work in the same time than with 2½".

Our best bricks for boiler-setting are blue [B.H.B.], although some people prefer the Flintshire white simply because they have been used to the idea that a fire-brick must be white, which is an error.

We have adopted grooves in the seating blocks to allow for the rivet heads, also in order that if a leak takes place it can be easily located, and until it is the water can get away and so prevent corrosion of the plate."

SCOTTISH SECTION.

The December meeting of this section took place on the 4th, in Edinburgh, within the Society's Rooms, 4, Queen-street. Mr. Robert Irvine, chairman of the section, presided. The attendance was of about average proportions for the season of the year. In the absence of any set paper for reading, the business of the meeting concentrated itself on a consideration of various points dwelt upon by Mr. R. Irvine in his address at the Glasgow meeting on November 6th, a summary of which was at the time given in this journal. Mr. G. Beilby, who was the chief speaker, concurred generally in what the chairman had said on the "burning question" of the hour, the flash-point of mineral oils. The Royal Commission was still sitting, and the Society in the meantime had gone as far in its dealing with the question as it could. There was danger of another kind ahead. New legislation was threatened for the "better regulation" of the oil trade, which would not only prove unworkable for the Scotch section of that trade, but would paralyse it altogether. Say that a West Highland steamer had a barrel or two of paraffin oil to discharge at a passing port, it would in that case have to put out all fires and lights before nearing the landing, send notice of intention to land the oil, wait the expiry of a given time, and labour

through other similar nonsensical formulæ! Rigid precaution might be necessary with dangerous low-flash foreign oils, but it was proposed to treat all oils alike up to 150° flash-point, and he thought that in any case Scotland, with its clean record as to explosion injuries, ought to be held exempt from any new legislation of the sort. He (Mr. Beilby) had made inquiry at the Scotch Fire Insurance Companies as to their statistics on fires arising from oil explosions, but found that these were so few in number, on account of the safety of the oil generally used in Scotland, that they had never taken the trouble to tabulate such occurrences statistically. It was natural for the London offices to do so, seeing that there the casualties were numerous and serious, because of the extensive employment of low-flash foreign oils. Therefore, they could scarcely expect the Scotch Insurance Companies to take up this question seriously, unless the time came when the consumption of these dangerous oils also assumed a large compass in Scotland. Mr. Beilby then briefly reviewed the Chairman's remarks about oil-gas, remarking that over 30 towns had already gone in for the enrichment of their coal-gas by the admixture of vapourised oil, and that oil-gas by itself was increasingly used for country houses and secluded works. Paper-mill pollution of streams and the treatment of town refuse were next touched upon, the prospect of profit from the latter in the recovery of tar, ammonia, etc., being held as not at all bright. Perhaps, however, the heading most interesting to the chemists present was that of "Gold Extraction," on which several spoke in addition to Mr. Beilby, the sentiments expressed showing clearly that the recent celebrated cyanide decision has given general offence to the chemist's sense of the fitness of things, so far at least as Scotland is concerned. There was no discussion, properly so-called, in the Chairman's address, but Mr. Beilby's remarks and the conversational comments of others, proved very interesting. To eke out the interest of the meeting, Mr. Irvine had on show, and in action, a new oil burning lamp or stove of his contrivance from which great things are expected, both in heating and cooking. The principle consists in the forcible admixture of air with the vapourised oil when on the point of ignition.

IMPORTS AND EXPORTS FOR NOVEMBER.

THE Board of Trade returns for the past month are on the whole fairly satisfactory. The imports of oils show an increase, and also nitrate of soda. The exports of alkali have improved considerably, owing to the stronger demand in America.

IMPORTS OF FOREIGN AND COLONIAL PRODUCE.

ARTICLES.	Quantities.	
	1893.	1894.
Margarine	Cwt. 113,554	84,914
Copper Ore and Regulus.....	Tons. 17,998	12,679
Pyrites.....	" 35,586	39,298
Tin	Cwt. 77,835	82,510
Alkali	" 9,698	19,698
Brimstone	" 13,083	19,336
Dyes, Coal Tar	£. 47,995	60,083
Saltpetre	Cwt. 18,888	23,827
Petroleum	Gall. 13,048,560	16,839,555
Turpentine	Cwt. 19,940	68,591
Guano	Tons. 1,502	3,350
Nitrate of Soda	" 673	8,813
Paraffin	" 75,897	69,140
Rosin	Cwt. 43,551	61,469
Tallow and Stearine.....	" 62,605	115,307
Oil Seed Cake	Tons. 24,695	21,681
Wood Pulp.....	" 19,366	27,592

EXPORTS OF BRITISH AND IRISH MANUFACTURES.

ARTICLES.	Quantities.	
	1893.	1894.
Alkali	Cwt. 477,014	721,026
Cement	Tons. 32,898	26,283
Coal and Coke	" 2,231,402	2,699,643
Copper, all kinds	Cwt. 74,077	83,018
Iron and Steel	Tons. 184,835	235,042
Chemical Manures	" 20,240	16,547
Oils, seed	" 4,743	4,415
Salt	" 46,233	52,079

PRODUCTION OF NITRATE IN CHILI.—Last year 931,032 tons of nitrate were exported from Chili. This quantity was valued at £6,150,000. sterling. There are 30,000 labourers engaged in the nitrate districts.

Reports of Companies.

THE PETROLEUM PRODUCTS SYNDICATE, LIMITED.

The statutory meeting of the shareholders of this company was held recently at the offices of the company, 1, Whittington-avenue. Mr. J. B. Gallini (director of the Imperial Oil Company) presided.

The Chairman referred to the importance of their petroleum fuel for steamship purposes. The fuel will not be affected by high temperature, and neither in a coal bunker nor in store in hot climates will there be any tendency to liquefy or give off a vapour. The percentage of petroleum in the fuel can be regulated to a point. Cost would mainly depend upon the local price for petroleum. Until tests upon a fairly large scale have been made the matter of cost in comparison with coal cannot be definitely fixed, but it may be relied upon that relatively there would be a considerable advantage in price on the side of the petroleum fuel, and there would also be the more important factors, viz., lessened space and lesser quantity to handle, advantages which naval authorities and steamship owners will fully appreciate. The importance of the fact cannot be too strongly emphasised that this second process for fuel making is of the simplest character, and requires neither heating nor boiling, and can therefore be carried out economically on a very large scale with little labour. The uses for so serviceable an article at every coaling port in the world must obviously be enormous. It will be especially acceptable to the Indian railways, where native coal, for mixing purposes, is equally as good as the best steam coal, and in many other economic ways the fuel will be most suitable, considering the long distances and the huge quantity of coal that has to be handled and stored, and particularly so in doing away to a great degree with the smoke nuisance, which makes railway travelling in India most disagreeable.

A vote of thanks to the chairman brought the proceedings to a close.

CASEL GOLD EXTRACTING COMPANY.

The report of the directors of this company states:—The patent affairs of the company have required and received much care and attention. The action for infringement against the Cyanide Gold Recovery Syndicate, Limited, Pielsticker, and others, in respect of the Patent No. 14,174 of 1887 for the MacArthur-Forrest process of obtaining gold, &c., from ore by treatment with cyanide, as described therein, was heard in July, in London, before Mr. Justice Romer, and his decision was given against the company on November 8. The company at once appealed, and are informed that the appeal will be heard in December or January by the Court of Appeal. In Germany an action to set aside the similar patent there, was raised against the company, which was heard in April. Prior knowledge (including the United States patents of Simpson and Rae) was strongly founded on, and the whole case thoroughly gone into. Judgment was given entirely in the company's favour, and the opposition have appealed. The appeal is expected to come on for hearing in Leipzig before long. Recently, two other actions have been raised against the same patent in Germany by different parties. They are on practically the same grounds as the first action, and quote the same documents. The profit and loss account, after providing for the usual writing down of the MacArthur-Forrest patents by £14,550, and £5,000. for depreciation of buildings, machinery, and plant, shows a credit balance of £7,839. 13s. 6d., which the directors recommend to be carried forward to next year. As a balance of £7,186. was brought forward, the profit for the year is £653.

MANGANESE IN FRANCE.

UNTIL the last few years the only manganese ore worked was the bixide of that metal; and in France only a few deposits of slight importance were proved, so that French iron and steel works were largely dependent on foreign countries for their supplies of manganese, which is now so largely employed in steel-making. The rarity of this substance was the cause of active explorations being made in France, especially in the department of Arriege, a region very rich in minerals, and containing several mines of manganese bixide. About 1880, a deposit of carbonate of manganese, the only one known to exist, was struck at Riverenert, in the neighbourhood of Saint-Girons; and owing to the fact of the seam occurring near the surface, it is worked opencast. Between 1881 and 1888 about 5,000 tons of ore were raised, having a content of manganese varying between 45 and 55 per cent. The crust, a few metres thick, formed by the bixide of manganese, is underlain by a very hard rock of greyish colour and having the appearance of marble, which was at first regarded as sterile, so that working was suspended. On the return, however, of one of the engineers, M. Segalas, from a tour in Spain, he perceived that the

grey rock had changed colour after exposure to the atmosphere and had assumed a blackish hue, while he had noticed in Spain carbonates of iron the appearance of which greatly resembled the rock now abandoned as sterile. Several samples were sent to the Government Ingenieur des Mines, at Foix, who found that the rock was carbonate of manganese, containing as much as 45 per cent. of that metal. It is now definitely ascertained that the bixide overlying the carbonate was due to the transformation of the latter, owing to the action of atmospheric influences. A concession was granted to M. M. Segalas Freres, who conceded their rights to M. Charles Simon, the present owner. Bordeaux is the headquarters of the company, which exhibited at Antwerp some fragments of ore, an analysis of which showed:—Manganese, 56.481 to 45.68; silica, 6.48 to 5.94; and phosphorus, 0.47 to 0.43 per cent.—*American Manufacturer.*

THE GARSTON CONVERTER EXPLOSION.

AN enquiry was held last week at St. George's Hall, Liverpool, before Mr. P. Howard Smith, barrister, and Mr. Hallett, consulting engineer (commissioners appointed by the Board of Trade), into the circumstances of the explosion of a converter at Messrs. Bostock's sugar refinery at Garston, on October 29th, when three lives were lost and eight persons injured (*C. Z. J.* 392 p. 322). Mr. K. E. K. Gough, who conducted the case for the Board of Trade, related the circumstances, and said that, from an examination of the plates of the exploded converter, it was found that in some places they had worn to the thinness of three-sixteenths of an inch, and in others one-sixteenth of an inch. They were of excellent quality, but owing to this thinness the bursting strain had fallen from 198lb. to 90lb. or less. At the time of the explosion there was a violent thunderstorm. Mr. Dunn said that Mr. Bostock, for whom he appeared, was ignorant that it was worked at too high a pressure. Mr. Howard Smith said the Court could not accept the theory that lightning was the cause of the explosion. They had a very plain cause in the over-pressure of steam. The Court could not acquit Mr. Bostock of blame for allowing the converter to be worked at a high pressure without ascertaining what pressure it could resist. The Court ordered Mr. Bostock to pay £65., half the expenses of the inquiry. With the exception of the machinery which formed the subject of inquiry the works were in a high state of efficiency.

THE GAS SUPPLY OF LONDON.

THE quality of the gas supplied to the City of London for the week ending November 24th, 1894, was good. According to the report of Mr. W. J. Dibdin, chemist and superintendent gas examiner to the London County Council, the tests made at the various testing stations showed no deficiencies in illuminating power. The following figures have been prepared from the report, and show the average composition of the gas calculated on the mean test:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.25	10.8	0.25	Nil.
South Metropolitan Gas Co.	6	16.36	13.00	0.26	Nil.
Commercial Gas Co. ..	2	16.1	8.1	0.45	Nil.

The supply for the week ending Dec. 1st was good. The results prepared as above were:—

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	13	16.25	10.74	0.2	Nil.
South Metropolitan Gas Co.	6	16.38	12.76	0.25	Nil.
Commercial Gas Co. ..	2	16.2	7.3	0.7	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

Trade Notes.

LI. GOING THE ROUND.—The old paragraph about the chemist be punster of 1888, which was recently dished up as American war, is still doing service as something new. The *Pharmaceutical Journal of Australasia* has given it special prominence in their October just to keep the ball rolling we suppose.

ITUARY.—We regret having to chronicle the death of Mr. G. L. atroyd, managing director of Murgatroyd's Ammonia-Soda and lyndicate. The deceased, who had been ailing for some time in over dose of belladonna. He was a homoeopathist, and had in the habit of treating himself for some years, having a great on to allopathy. He was 44 years of age.

NDING SALE OF NITRATE GROUNDS.—The Chilean Government ls to subdivide the nitrate fields which failed to find purchasers at cent sale, and will offer these smaller lots at another sale to be arly next year. Chilean capital is entering a good deal more freely usual into the nitrate industry. One man, for instance—the oldest e owner in Tarapaca, and a millionaire—bought £300,000 worth recent sale.

ANIDE GOLD EXTRACTION PROFITS.—According to the returns : Sheba Gold Mining Company, for the past year, out of a net of £111,920. 6s. 6d., the remarkable sum of £73,740 16s. 11d. ontributed to the profits, solely by the treatment of tailings by acArthur-Forrest process, the actual value of the gold won, less y, was £94,452. 13s. 4d. The cost of treatment being £19,503. d., and estimated cost of remitting, £1,203.

E JULIA-TALTAL NITRATE COMPANY, LIMITED.—A cablegram been received by the Taltal Railway Company from its al manager, stating that the branch line to the Julia a will be completed and open for traffic before the end year. A cablegram has been received from Mr. Blyth, acting e liquidator of the old company (the Julia Nitrate Company, ed), stating that the transfer has been completed, and the Julia- Nitrate Company, Limited, is now the registered owner, and in ssession of the whole of the properties.

TRATE STATISTICS FOR DECEMBER.—The Permanent Nitrate ittee's public statistical circular for December states:—"Nitrate da: Total exports to Europe, November, 3,430,000 quintals; ig for Europe, December 1st, 2,200,000 quintals; imports, e, November, 49,380 tons; deliveries in Europe, November, o tons; visible supply, Europe, December 1st, stocks and afloat, 20 tons."

LE AT A COTTONSEED OIL WORKS.—Recently an employé at s. Bibby and Son's cottonseed oil works, Widnes, was about to a fire when he let an oil lamp fall. The ignitable stuff around t fire, and in a few minutes the whole works was in flames. The igade and police were summoned, but the works were gutted, ge being done to the amount of over £1,000. The surrounding es were saved.

E DEPUTATION ON SMOKE PROSECUTIONS.—At the last meeting e Manchester Chamber of Commerce it was reported by the ical and Allied Trades Sectional Committee that they had re- to wait upon the Sanitary Committee of the Manchester Cor- on in order to place before the members of the Sanitary Com- a statement of the difficulties in which the users of special es and intermittent fires found themselves owing to the rigour ly shown by the Corporation in regard to the occasional emis- black smoke. An appointment has been made with the Sani- Committee for Friday the 21st inst. The proceedings were ved by the Board.

WARNING TO STRIKERS.—At the Whitehaven Police-court, ly, James Hughes, furnaceman, Cleator Moor, and 97 others, summoned for breach of contract under the Employers and men Act. The men had been employed by the Whitehaven ite Iron and Steel Company, Limited, at their furnaces at r Moor. On Friday, November 23rd, all the men employed at works struck because they found that the pig lifters were to be ed by a contractor who was going to employ his own men. e men left work in a body there were some 700 tons of raw al in the furnaces. This was left standing in the furnaces, and was utterly impracticable to deal with it. The minimum amount age thus caused was £800. odd, but it might cost two or three nd pounds to repair the damage, and it was just possible that the rances might be lost. A consultation took place between Mr. T. o, who appeared for the company, and Mr. R. F. Thompson, of l, representing the defendants, with the result that Hughes was d to pay £5. and costs, and all the other ninety-seven workmen ordered to forfeit all wages due to them, and each to pay costs.

MESSRS. READ HOLLIDAY AND SONS.—The tender of Messrs. Read Holliday and Sons, Limited, Huddersfield, for the supply of 600 tons of oxide of iron, has been accepted by the Gas Committee of the Salford Corporation.

PETROLEUM LAMP ACCIDENTS.—A double fatality, which occurred at Liverpool late on Saturday last, again shows the dangers arising from petroleum lamps. The fire brigade were called to a house in Rutter-street, occupied by Robert Jones and his wife, an elderly couple. The flames were speedily extinguished, and when the firemen entered the bedroom in which the fire occurred they found the charred remains of the man on the bed, while the woman's body was found on the floor, she having evidently been suffocated while trying to escape. A broken paraffin lamp, which it is conjectured had exploded and caused the fire, was also found.

The upsetting of a mineral oil lamp caused a fire on Sunday evening at a house in Boyd-street, Beckchurch-lane, Whitechapel, occupied by Mr. J. Woolf. The lower part of the house was gutted, and Norah Woolf, aged 40, and her daughter Sarah, aged eight months, were so severely burned as to necessitate their removal to a hospital. A destructive fire was caused on Saturday last through a mineral oil lamp being upset at a house in Hither-green-lane, Lewisham, the premises of Mr. H. Reeve, oilman. The shop, and house of nine rooms, became involved from top to bottom and were completely gutted, and the next door premises of Mr. J. Hurdidge, butcher, and Mr. E. Dixon, greengrocer, were seriously damaged.

HEAVY FINES FOR WATERING BEER.—At the Thames Police-court, last week, Edward James Legg, a beerhouse-keeper, Bow-common-lane, pleaded guilty to diluting beer to the extent of 4½ gallons of water to the barrel of 36 gallons. Mr. Mead imposed a fine of £12.—Joseph Saywood Owers, a beer retailer, of 145, Devons-road, Bromley, was summoned for a similar offence. It was stated the dilution was equal to upwards of four gallons of water to the barrel. Mr. Young submitted the prosecution had failed to make out their case. Mr. Mead imposed a fine of £10.

NITRATE STATISTICS FOR DECEMBER.—Messrs. G. C. Dobell and Co., while pointing out that the visible supply for the month is about 7,000 tons less than last year, give the following figures for the past three years:—

	1894.	1893.	1892.
	Tons.	Tons.	Tons.
Stock, U.K. and Continent, on 30th Nov....	90,450	94,400	180,850
Quantity afloat, Europe	360,000	363,000	237,150
Visible supply, 1st Dec.	450,450	457,400	418,000
Deliveries in first 11 months on Continent..	745,930	642,830	663,110
Deliveries in first 11 months in U.K.	110,900	99,840	115,080
Total	856,830	742,670	778,190

GOLD PRODUCTION IN NOVEMBER.—The New Reifontein Estate Gold Mines Company, Limited, report the approximate crushing for November as 1,650 ounces; cyanide and concentrates, 750 ounces; total, 2,400 ounces. The Wemmer Gold Mining Company, Limited, advises result of work done during November as follows:—4,744 tons crushed, yielding 3,016 ounces of gold, 40 stamps working 30 days; and from cyanide plant 3,750 tons, yielding 563 ounces of gold. The Geldenhuis Main Reef Gold Mining Company, Limited, report for November:—3,253 tons crushed, for 1,149 ounces; also 521 ounces from cyanide; total, 1,670 ounces. The Simmer and Jack Gold Mining Company, Limited, reports: Crushed 9,500 tons, obtained 3,705 ounces of gold from mill, 481 ounces of gold by chlorination, and 2,523 ounces of gold from tailings by cyanide during the month.

FIFTEEN PER CENT. OF BUTTER AND EIGHTY-FIVE PER CENT. OF "SOMETHING."—At the St. Helens Police-court recently R. Maddrell was summoned for selling butter not of the nature and quality demanded. Inspector Steel stated that on the evening of the 2nd ult. he visited a shop No. 52, Westfield-street, belonging to a grocer and provision dealer, named John George Parkinson, which was managed by the defendant. He saw on the counter two lumps labelled as butter, and the price was shown, and there were several lumps of margarine besides. He asked for a pound of butter off the lump marked 1s., and was supplied by an assistant. He paid him for the butter and then told him he had purchased it for the purpose of having it analysed by the public analyst, and offered to divide it and to give defendant one part. Defendant took one part and one part was sent to the public analyst. On the following morning defendant called at the police office and said the butter he sold witness was a mixture and not pure butter, and that if any proceedings were going to be taken he wished them to be taken against himself, as Mr. Parkinson knew nothing about it. Chief Constable Wood read the analyst's certificate upon the sample submitted to him, which showed that it contained 85 per cent. of fats other than butter. A fine of 10s. and 10s. costs was imposed, or fourteen days.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Benzols continue flat, though there is a fairly good demand. 90's and 50/90's are both quoted 1s. 1½d. Carbolic acids are weak. Crude 60% is inclined to easier prices, present quotation being 1s. 5d. Crystals, 40%, are flat at 5d., with nothing doing. The only exception to the prevailing depression is solvent naphtha, which is firmer at 1s. 2½d. Crude unaltered at 5½d. Creosote is without change. Anthracene is quoted 1s. 1d. for 30% A, and 10¼d. for B. Pitch is steady, though prices are slightly easier at 40s. prompt, f.o.b. East Coast, forward 38s.

Sulphate of ammonia is very unsatisfactory. Owing to supplies being more plentiful, dealers have been able to prosecute their "bear" tactics at an advantage. Beckton is quoted at £11. 5s. prompt, and £11. 7s. 6d. February-March delivery. Prices, however, are quite nominal, so that it is misleading to say anything further than that the prices at all ports range from £11. 5s. to £11. 7s. 6d.

MISCELLANEOUS CHEMICAL MARKET.

The firmer tone in the alkali trade is maintained. Shipments of alkali recently have been exceedingly heavy, and business generally is more active for spot and forward delivery, buyers being now more anxious to cover forward requirements in the belief that prices, having touched their lowest point, are likely to rise. Ammonia alkali is firm at £3. 5s. to £3. 10s., bags, f.o.r. makers' works, and £4., casks, f.o.b. Caustic soda is unaltered, nearest spot quotations are as follows, viz.:—f.o.b. Tyne, 77%, £10. per ton; f.o.b. Liverpool, 74%, £9. 5s.; 70%, £8. 5s.; 60%, £7. 5s. per ton, 10-ton lots and upwards. Bleaching powder is without any material change in position, either for prompt or forward: price for softwoods, on rails, makers' works, is £7. to £7. 5s. per ton for spot delivery; and hardwoods, f.o.b., £7. 7s. 6d. to £7. 10s. per ton. Soda crystals still lifeless. Bicarbonate has a slightly easier tendency for forward business. Chlorates of potash and soda are without further change, the market being, if anything, however, in buyers' favour. Recovered sulphur is firmer, owing to curtailment of make, but with a firmer tendency. Borax and boric acid are still offering at very low rates, and competition for orders is remarkably keen. Potash, caustic and carbonate, are both firm in price and in good demand. Brown acetate of lime steady at £6. 2s. 6d. to £6. 5s. at usual points of delivery. For grey acetate of lime there is little or no demand. For acetate of soda the advance in price is maintained. Other acetates and acetic acid are unchanged. Yellow prussiate of potash continues to sell freely at 10d. to 10¼d. Carbolic acids, liquid and crystal, are without improvement, either for prompt delivery or forward outlook. Sulphate of copper steady at £14. 12s. 6d. to £14. 15s., and with better inquiry. White powdered arsenic scarce, and price £14. 5s. to £14. 10s. per ton. Aniline oil and salt quiet, and prices entirely in buyers' favour. The level of values throughout the chemical trade generally is unusually low, and there is much room for improvement.

REPORT ON MANURE MATERIAL.

The market continues very quiet all round, and any alteration in values is in buyers' favour. Quotations for mineral phosphates are unchanged: Florida rock, 75/80%, offers at 7¼d. per unit, 1895 steamer shipment, c.i.f. to good United Kingdom ports; South Carolina River rock at 6¼d. per unit; Peace River rock at 6½d. per unit; and 55/60% Algerian at 6¼d. per unit. The value of River Plate cargoes of bones, delivered good United Kingdom ports, is about £4. 8s. 9d. per ton, but we do not hear of any business. Crushed Kurrachee bones offer at £4. 12s. 6d. per ton, but buyers don't come forward at the price. Bombay bone meal, for forward shipment, may be had at £4. 10s. per ton, ex quay Liverpool or Glasgow. Parcels of common grinding and charring bones find a ready sale at Liverpool at full prices. Nitrate of soda is quiet, but steady: on spot the quotation for fine quality is 8s. 10½d. per cwt. and that for ordinary quality is 8s. 9d. per cwt., and very little doing at the prices. Due cargoes are worth about 8s. 7½d. per cwt., and October-November shipments 8s. 9d. to 8s. 10½d. per cwt., according to position and test.

LIVERPOOL MINERAL MARKET.

WEDNESDAY.

The market this week has continued very steady, and last quotations have been well maintained. In manganese there has been no alteration to report: sales have been steady at previous figures: ground, £6. to £12. 10s. Manganiferous ore stands firm at 15s. to 17s. 6d., c.i.f., in cargoes. Bauxite, Irish Hill Brand, continues in good demand: prices

are unaltered, 20s. for first quality, 16s. for seconds, and 12s. for thirds, f.o.b. Owing to the increased demand for this article for the manufacture of aluminium, prices are already looking very much firmer, with the probability of an early advance. Chrome ore continues in good demand, full figures being obtainable; there are no stocks on the spot, whilst arrivals continue slow, consequently prices are firm at 65s. to 70s. for 40% and 105s. to 110s. for 50% ore. French chalk, "Angel White" and "Gold Medal" Brands: a steady trade is being done, and prices are firm at 75s. to 110s. Barytes: carbonate continues scarce, the demand is fair, and prices firm at 95s. for best lump and 70s. to 80s. for nut size. Finest sulphate, lump and ground, is very scarce, and prices have advanced some 5s. per ton. Wolfram and scheelite continue in fair request at £18. to £24. for 60%, whilst higher grades bring considerably higher prices. Ferro tungsten, containing 80% tungsten metal, 1s. 9d. per lb. Strontia sulphate (Celestine) continues unchanged. Plumbago, for founders' purposes, £5. to £6.; better qualities, £8. to £10. per ton. Bog ore unchanged at 22s. to 23s. per ton.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, easy: Scotch warrants closed at 42s. 4½d., Middlesbrough 35s. 5d. cash, and hematite 43s. 4d. Copper, quiet: Chili bars, G. O. B.'s and G. M. B.'s, closed at £40. 17s. 6d. to £41. 2s. 6d. cash, and £41. 5s. to £41. 10s. three months. Tin, steady: Straits closed at £64. 5s. to £64. 15s. cash, and £64. to £64. 10s. three months; Australian, £64. 10s.; English ingots, £67. to £67. 10s. Lead, firm: Spanish, £9. 12s. 6d.; English, £9. 15s. to £9. 17s. 6d. Silesian spelter, ordinary: £14. 12s. 6d. Nickel, 1s. 4d. Antimony, £33. 10s. Quicksilver: first hands, £6. 12s. 6d.; second hands, £6. 10s. Copper shares, quiet: Cape, 1½ to 1½; Copiapo, 1½ to 1½; Libiola, 3½ to 3½; Mason and Barry, 1½ to 1½; Rio Tinto, 14½ to 15½; Tharsis, 4½ to 4½.

GLASGOW, WEDNESDAY.—Market steady, with small business. Scotch done at 42s. 5d. cash, also at 42s. 7d. one month; closing with buyers at 42s. 4½d. cash, sellers ask 42s. 5d. Cleveland closes with buyers at 35s. 5d. cash, sellers ask 35s. 6d. Cumberland hematite done at 43s. 4½d. cash; closing with buyers at 43s. 4d. cash, sellers ask 43s. 5d. Middlesbrough hematite closes with buyers at 42s. 4½d. cash, sellers ask 42s. 6d.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Dec. 4th, 1894, state:—

Chili charters for the second half of November are advised as 300 tons, which with 950 tons for the previous fortnight make 1,250 tons for the month. The total since 31st December 18,950 tons, being same quantity for this time last year. Exchange 13½d. Since our last report the market for G.O.B.'s and G.M.B.'s has again been irregular, and prices have fluctuated between £40. 2s. 6d. cash and £40. 10s. three months, and £39. 12s. 6d. and £40. respectively, closing to-day with buyers at £39. 16s. 3d. cash and £40. 3s. 9d. three months.

The Cape Copper Company has declared a dividend of 1s. 3d. per share on the Cumulative Preference and Ordinary Shares, free of income tax, payable on 1st January next. The total stocks in Liverpool, Swansea, London, and Havre are 49,645 tons, against 49,236 tons on the 16th ult., showing an increase of 409 tons for the fortnight, which with an increase for the previous fortnight of 198 tons, makes the increase for the month 607 tons. The stocks include about 1,200 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,398 tons, against 52,861 tons on the 16th November, showing a decrease of 463 tons. The month's figures show a decrease of 391 tons. Refined and manufactured sorts are quiet, quotations being:—Tough cake, £42. to £42. 5s.; best select, £42. 10s. to £42. 15s.; Indian sheets, £48.; strong sheets, £51.; and yellow metal sheets, 4½d. per lb. The sales of furnace material comprise 22 tons Spanish precipitate, at 8s. 3d.; 100 tons Mexican ore, at 7s. 6d.; 500 tons ordinary Montana Matte, at 8s. 3d. per unit; and 1,000 tons ordinary Montana Matte, lying New York, sold at equal to 8s. 3d. English terms; 60 tons Argenteriferous Peruvian ore, 120 tons Portuguese ore, 14 tons Argenteriferous Chili Regulus, 10 tons Argenteriferous River Plate bars, on private terms.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, though rather quiet. Full prices are obtainable, Lagos having been sold at £23. 5s. per ton, ex quay; Cameroon, £21. 10s. transit. Olive is in fairly good request at £30. to £38. per tun, according to quality. Business has been done in Candia at £31. Linseed is quiet, with Liverpool makes in export

casks at 21s. to 22s. per cwt. Cottonseed has ruled dull throughout the week, and to-day's price for American is slightly easier at 19s. per cwt. Liverpool refined is unaltered at 18s. 3d. to 19s. per cwt. Castor oil is rather quiet, the demand being poor; quotations, however, continue the same. Good seconds Calcutta $2\frac{1}{4}$ d. to $2\frac{3}{4}$ d., and first pressure French $2\frac{3}{4}$ d. to $2\frac{1}{2}$ d. per lb. Tallow is very steady, and the demand is better at full prices. Resin keeps steady at the full values ruling, common being quoted 4s. per cwt. Prices being high is causing the business done to be small. Spirits of turpentine are firm, with a fairly good inquiry. American 21s. per cwt., and Mexican 20s. in cases. The demand for petroleum is not active. Prices are: American, $4\frac{1}{4}$ d. to $5\frac{1}{2}$ d.; Russian refined $3\frac{3}{4}$ d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, £10., medium, £12., best, £15., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 70s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 55s. to 60s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, £16. Red lead unchanged. Venetian red, £6. to £10. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, £7.; medium, £10.; finest, £20. Zinc oxide, £22. 10s. to £25.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Dulness characterises the market, which everyone appears to anticipate will become gradually more accentuated until the turn of the year. The import of linseed for the week is 19,661 qrs., viz.: From Riga 6,946 qrs., Reval 4,701 qrs., Memel 3,065 qrs., Libau 2,504 qrs., Nicolaieff 2,445 qrs. Linseed oil is easier but steady, at 19s. 6d. naked spot, month worth 19s. $7\frac{1}{2}$ d., January-April 19s. $4\frac{1}{2}$ d., and May-August 18s. 9d. to 19s. 9d. Last four months offer at 18s. 9d. Boiled and refined ditto from £1. to £2. per ton extra. Casks, 17s. 6d., and barrels, 25s. per ton extra. Export for the week, 840 cwt. Cottonseed: The imports during the week have been 5,548 tons from Alexandria. Refined cotton oil about 5s. per ton lower on the spot, closing dull at 16s. 3d. naked. December-April offer at 16s. 6d., and May-August at 17s. 3d. Of rapeseed there has been an import of 2,307 qrs. Rape oil is unchanged. Town melted tallow, £24. Turpentine, 21s. 3d. per cwt. Olive oil from £31. to £38. per tun. "Vegaline," the new vegetable butter, white and neutral for culinary and confectionery purposes, £30. per ton. Cod oil unchanged and quiet at £16. to £18. per ton. Pine oil, £6. 5s. per ton. Soft soap, 14s. 6d. per cwt. Boiled drying oil £12. 10s. per ton. Sod oil quiet.

CAKES.—Linseed cakes firm. 95% pure, £6. 7s. 6d. to £6. 12s. 6d. Russians, £6. 2s. 6d. to £6. 12s. 6d. Oilcakes, £5. 7s. 6d. to £5. 12s. 6d. Cotton cakes firmer: crushers are getting tired of the inadequate margin; best makes new seed, £3. 12s. 6d. to £3. 15s.; best old seed, £3. 10s. to £3. 12s. 6d. Rape Cakes: Feeding, £4. 7s. 6d.; Black Sea, £2. 15s.; East Indian, £3. 15s. per ton.

PAINTS.—Makers continue very quiet. Dry colours are quoted: Venetian red, dry, from £3. 15s.; Red oxide, from £7. to £18.; Blue black, £4.; Yellow ochre from £3. 15s. Leads and oxide of zinc unchanged. Venetian red, black, yellow ochre, blue, and oxide paints from £12. per ton. Paint remover from 25s. to 30s. per cwt. Black varnish, £5. 10s. per ton in barrels. Oak varnish from 5s. 6d. per gallon.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

The Scotch section of the sulphate of ammonia market has continued unchecked on its downward course, though always with singular deliberation, evincing the faith of the producers in some not too remote turning of the lane. The downward movement is unfortunately always ready to be headed by those makers who need money for purposes that are immediate, and that will not be put off—makers who have no reserves of cash to fall back upon—of which sort there always have been one or two for some time past. Buyers are more difficult to find than ever, and when found they have to be tempted before they will act. It is reported that £11. 7s. 6d. has been taken by one maker, but one or two of the other sort hold for £11. 10s.; market value at present is something under that, however.

There is no improvement in the ordinary chemicals. In fact, what movement there may be is certainly still downwards; without any positive further drop, both bleaching powder and caustic soda are weaker, and no recovery is now hoped for until after the turn of the year.

As hitherto, the section of mineral oils and solid paraffins is that which shows most of activity in this quarter, and makers' output for direct consumption continues very large with the old prices well maintained.

Chief prices current are:—Soda crystals, 37s. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52°, £4. 10s. to £5. 5s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 7s. 6d., 70/72° £8. 7s. 6d., 60/62° £7. 7s. 6d., and cream 60/62° £7. 5s. all nett, Liverpool; bleaching powder, £7. 5s. nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, $4\frac{1}{2}$ d. nett, for Scotch and English deliveries (for export, $4\frac{1}{4}$ d. nett, f.o.b. Glasgow); bichromate of soda, $3\frac{3}{4}$ d. nett, for Scotch and English deliveries (for export, $3\frac{1}{2}$ d. nett, f.o.b. Glasgow); chlorate of potash, $5\frac{3}{4}$ d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, £11. 7s. 6d. to £11. 8s. 9d., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 10s. less 5%, Liverpool; paraffin scale, hard $1\frac{1}{2}$ d.; soft $1\frac{3}{4}$ d. to 2d. per lb.; paraffin wax 120° semi-refined $2\frac{1}{2}$ d.; paraffin spirit (naphtha), 7d. per gallon; paraffin oil (burning), standard No. 1 grade, $4\frac{1}{4}$ d. at works, for Scotch buyers (English sales, $\frac{1}{2}$ d. to $\frac{3}{4}$ d. lower); ditto (lubricating) 865° £4.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Leith were 4,990 bags unrefined beet, and 100 bags refined beet.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are still dull and the position unaltered, the stoppage of the principal works on the Tyne within the next few days for the year-end holiday will probably have the effect of clearing out stocks, and with the New Year it is hoped there will be an improved demand. Prices are as follows:—

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77°, £10. 5s. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett. Soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d. per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £1. 17s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, £1. 17s. 6d. per ton, nett; chlorate of potash, $5\frac{3}{4}$ d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminates of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt unaltered at 9s. to 9s. 6d. per ton, f.o.b. Tees. Block salt firm at 15s. per ton.

COALS.—Trade is rather steadier and collieries have now a longer turn on. The improvement in demand applies principally to steam qualities. To-day's quotations are: Best Northumbrian steam, 9s. to 9s. 6d. per ton; second qualities do., 8s. to 8s. 6d. per ton; small steam, 3s. 9d. to 4s. per ton; gas coals, 7s. 3d. to 8s. per ton; coke fairly steady, 13s. to 14s. per ton.

New Companies.

The Tabard Works, Ltd. CAPITAL, £2,000, in £1. shares. This company has been formed to purchase the Tabard Works and carry on the business of chemical cleaners, chemical manufacturers, &c.

Damaraland Guano Company, Ltd. CAPITAL, £100,000, in shares of £1. each. This company has been formed to acquire properties in Africa and to trade as guano manufacturers, metallurgists and miners. The subscribers to the memorandum of association are:—A. Cowen, 11, Chester-buildings, N., solicitor's clerk; F. S. Smith, Battersea rise, S.W.; F. Sawyer, Streatham, solicitor's clerk; P. Jerome, 25, Basinghall-street, E.C., solicitor; C. L. Quin, 64, Basinghall-street, E.C., clerk; W. B. Cain, Forest-gate, clerk; A. Lienard, Muswell-hill, accountant.

Aluminium and General Foundry Syndicate, Ltd. CAPITAL, £10,300, in 1,000 preference and 300 founders' shares of £1. each. This company has been formed to work certain patents for the manufacture of aluminium and alloys and solder for the same. The subscribers to the memorandum of association are:—R. Van Wart, 2, Wellington-chambers, S.W., merchant; H. Leighton, 110, Cannon-street, E.C., merchant; J. S. E. Vesian, Cheapside, engineer; A. H. Tyler, Broxbourne, Herts., engineer; C. E. B. Beaumont, 61, Pall Mall, S.W., retired captain; H. E. Smith, 29, Finsbury-pavement, C.E.; S. Gorringe, 31, Abchurch-lane, E.C., secretary.

Gazette Notices.

PARTNERSHIP DISSOLVED.

S. HERBERT, W. C. FRITH, AND C. JONES, manufacturers of disinfectants, Gloucester, under the style of the Hygeian Fluid Company.

BANKRUPTCY ACTS, 1883 and 1890.
Adjudication.

BOSTON, HENRY GEORGE, York, manufacturing chemist.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Improvements in Apparatus for Concentrating Sulphuric Acid. I. Levinstein. 2,284. November 26.
Obtaining a Continuous Supply of Hydrochloric Acid Gas or Nitric Acid Gas, and Utilising Acid Sulphates. J. W. Walker. 22,853. November 26.
Manufacture of Chromates and Nitric Acid. W. Garraway. 22,862. November 26.
Blue Colouring Matters which resist Alkaline Carbonates. J. Imray. 22,904. November 26.
Treating Residual Solutions of the Ammonia-Soda Process for the Recovery of Ammonia and Chlorine. J. Brock A. E. Wareing, and F. Hurte. 22,917. November 26.

Artificial Ivory. E. Weibers and R. Crosse. 22,929. November 26.
Extracting Gold from its Ores and Apparatus therefor. L. C. Daumas. 23,006. November 27.
Apparatus for Carbonating Liquids. H. J. Haddon. 23,031. November 27.
Improved Method and Means of Carbonating Liquids. J. H. Haddon. 23,031. November 27.
Improvements in Dry Soap. H. Heaton. 23,054. November 28.
Electrolytical Production of Rich Alloys of the Alkaline Metals and Alkaline Earths and the Production of Chlorine. L. P. Hulín. 23,117. November 28.
Treating Alloys for the Manufacture of Elements for Voltaic Batteries and Caustic Alkalies. L. P. Hulín. 23,193. November 29.
Revivifying or Producing Animal Charcoal, etc. J. A. Yeadon and W. Adgie. 23,220. November 30.
Recovering Fats or Oils from Clays, Sands, Slimes, etc. S. Crowder. 23,228. November 30.
Apparatus for Distilling or Gasifying Tars, Oils, etc. W. V. Horsfall. 23,230. November 30.
Evaporating Apparatus. J. Foster. 23,235. November 30.
Roasting Sulphide Ores. C. F. Claus. 23,262. November 30.
Process and Apparatus for the Conjoint Manufacture of Metallic Peroxides and Caustic Alkalies. L. P. Hulín. 23,274. November 30.
Obtaining Gold from Tailings and Slimes. S. Crowder. 23,293. December 1st.
Fuel Economisers. A. Lowcock. 23,314. December 1.
Fuel Economisers. A. Lowcock. 23,315. December 1.
Manufacture of Oxycarbon Acids of the Aromatic Series. L. Lederer. 23,359. December 1.
Manufacture of Caustic Alkalies from Alloys of the Alkali Metals. L. P. Hulín. 23,370. December 1.
Process and Apparatus for Carbonising and Distilling Animal and Vegetable Matters, with the Recovery of Useful Products. A. Weil and A. Goutierre. 23,373. December 1.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 1st

Acetate of Lime—

France, 10 pkgs. F. Smith

Acetic Acid—

Belgium, 2 pkgs. Leach & Co.

Holland, 4 Beresford & Co.

" 50 A. & M. Zimmermann

" 17 Berger, Kahler, & Co.

Acetone—

Germany, 1 pkge. H. Lorenz

Alkali—

Germany, 24 pkgs. L. & I. D. Jt. Co.

Alum—

Belgium, 24 pkgs. Greeff & Co.

Germany, 13 H. Lambert

Alumina—

Holland, 31 pkgs. R. W. Greeff & Co.

Ammonia—

Holland, 10 pkgs. Little & Johnston

Ammonium Chloride—

Holland, 3 pkgs. H. Lorenz

Anthracene—

Holland, 23 pkgs. Burt, Boulton, & Co.

Antimony—

Queensland, 8 t. L. & I. D. Jt. Co.

Antimony Ore—

Queensland, 8 t. L. & I. D. Jt. Co.

A. Turkey, 15 French & Smith

Asbestos—

Germany, 228 L. & I. D. Jt. Co.

Japan, 10 Herra, Peron, & Co.

" 490 L. & I. D. Jt. Co.

Barium Chloride—

Holland, 22 pkgs. Petri Brs.

Barytes—

Germany, 19 cks. S. H. Willoughby

Holland, 88 T. & W. Farmiloe

" 47 W. Taylor

" 75 Magee, Taylor, & Co.

" 18 T. Robertson

" 22 O'Hara & Hoar

" 42 Squire & Calver

" 22 J. L. Lyon & Co.

Belgium, 33 18 brls. Leach & Co.

Bitro Toluol—

Holland, 7 pkgs. J. Owen

Camphor—

Hong Kong, 28 pkgs. City Coml. Wf., Ltd.

Caoutchouc—

France, 23 c. H. Johnson & Sons

Zanzibar, 6 L. & I. D. Jt. Co.

Rangoon, 48 "

E. Indies, 190 Huttenbach & Co.

Madagascar, 10 Prop. Bull. Wf.

Castor Oil—

France, 26 brls. Beresford & Co.

Italy, 25 cs. G. S. N. Co.

E. Indies, 10 W. Halcin

Belgium, 36 brls. A. Brown & Co.

" 20 J. T. Morton

Caustic Potash—

France, 20 drs. Spies Brs. & Co.

Holland, 49 c. J. M. Steel & Co.

Caustic Soda—

Holland, 1 c. E. Merck

Chemicals (otherwise undecoded)

Germany, 6 pkgs. L. B. Craven & Co.

" 54 T. H. Lee

" 62 A. & M. Zimmermann

" 30 W. J. Fox

Holland, 18 Philipps & Graves

" 6 G. Rahn & Co.

" 17 E. Merck

Belgium, 17 T. Palmer

" 7 O. Scholzig

U. States, 13 Hopcraft & Broadwater

Citric Acid—

Germany, 20 pkgs. W. M. Smith & Sons

Cream of Tartar—

Italy, 5 pkgs. D. Magnus

" 9 Fellows, Morton, & Co.

Holland, 6 Kirkpatrick & Co.

Spain, 14 W. C. Bacon & Co.

" 5 F. C. Devon & Co.

" 5 B. & F. Wf. Co.

France, 11 C. F. Gerhardt

" 13 "

Dextrine—

Holland, 10 pkgs. H. Lorenz

Germany, 200 W. Balchin

" 6 City Coml. Wf., Ltd.

Dyestuffs—

Cochineal

Canaries, 12 pkgs. Marshall & French

" 54 G. S. Bruce

" 2 Sperling & Williams

" 12 J. W. Borland

Cutch

Rangoon, 500 pkgs. A. Howden & Co.

" 500 Leach & Co.

" 80 Devitt & Hett

" 468 Arracan Co., Ltd.

Extracts

France, 25 pkgs. B. & F. Wf. Co.

" 112 Prop. Chmbln.'s Wf., Ltd.

Italy, 4 Kearley & Tonge

Canada, 52 Boutcher, Mortimore, & Co.

U. States, 50 J. Graves

Canada, 80 Furness, Withy, & Co.

Germany, 1 Batty & Co.

France, 535 Boutcher, Mortimore, & Co.

Denmark, 3 A. F. White & Co.

France, 20 Beresford & Co.

U. States, 100 Skilbeck Bros.

France, 133 L. J. Levinstein & Sons

Fustic

B. W. L. 10 t. J. Graves

Gambier

E. Indies, 1,715 pkgs. E. Boustead & Co.

" 440 Brinkmann & Co.

" 826 Brown & Elmslie

" 462 S. Barrow & Bro., Ltd.

" 937 Beresford & Co.

" 169 J. Greig

" 264 L. & I. D. Jt. Co.

" 497 Hoare, Wilson, & Co.

Indigo

E. Indies, 3 chta. Arbutnot, Latham, & Co.

" 4 L. & I. D. Jt. Co.

Myrabolams

E. Indies, 620 pkgs. Page, Draper, & Co.

" 1,780 A. Hagan

Saffron

Spain, 1 pkge. City Coml. Wf., Ltd.

" 1 Adam Bros.

" 1 Hodgkinsons & Co.

Shumac

Italy, 100 pkgs. H. Johnson & Sons

Turmeric

E. Indies, 45 pkgs. Beresford & Co.

" 500 Hoare, Wilson, & Co.

Valonia

Greece, 19 t. J. Graves

A. Turkey, 52 A. & W. Nesbitt

" 25 Boutcher, Mortimore, & Co.

Farina—

Holland, 100 pkgs. H. Lorenz

Germany, 50 R. G. Hall & Co.

Glucose—

Germany, 500 pkgs. 500 c. Baxter & Hoare

" 9 65 c. Dutrulle & Co.

" 100 100 R. G. Hall & Co.

" 33 269 Prop. Chmbln.'s Wf.

Holland, 10 80 F. H. & A. Collier

" 200 200 Ohlenschlager Brs.

Germany, 100 100 "

U. States, 50 286 "

" 500 500 G. Clark & Son

" 500 520 Barrett, Tagant, & Co.

" 1,025 3,500 L. Sutro & Co.

" "

" "

" "

" 200 1,148 Pillow, Jones, & Co.

" 95 125 T. T. Creed

" 50 285 J. Keiller & Son, Ltd.

" 500 500 J. Barber & Co.

" 50 275 C. Southwell & Co.

" 873 4,074 R. G. Hall & Co.

" 995 995 Boake, Roberts, & Co.

" 50 235 H. Johnson & Sons

" 50 200 L. & I. D. Jt. Co.

" 50 288 Prop. Scott's Wf.

France, 260 260 L. Norman & Co., Ltd.

Lead Acetate—

Germany, 16 pkgs. A. P. Morris

Magnesium Sulphate—

Germany, 178 pkgs. Berger, Kahler, & Co.

Manganese—

Australia, 10 t. Van der Byl, Pratt, & Co.

Japan, 500 Samuels & Co.

Holland, 36 pkgs. G. Rahn & Co.

Manure—

Germany, 20 t. S. F. Waters & Co.

" 20 F. W. Berk & Co.

" 50 Perkins & Homer

E. Indies, 850 A. Hunter & Co.

" 250 Craven & Co.

Belgium, 5 H. & E. Albert

Methyl Alcohol—

Germany, 5 pkgs. Lister & Biggs

Mica—

E. Indies, 90 pkgs. F. Claydon & Co.

Adelaide, 135 W. M. Smith & Sons

" 68 Rangoon, "

Nitronaphthalene—

Germany, 4 pkgs. H. Lambert

Ochre—

Holland, 7 pkgs. Philipps & Graves

France, 102 Medway Paper Mills

" 30 Ross & Deering

Ozokerit—

Germany, 165 pkgs. M. D. Co.

Paraffin Wax—

U. States, 208 brls. H. Hill & Sons

Rangoon, 238 cs. "

" 300 brls. Palmer & Co.

Phosphate Rock—

Algeria, 250 t. Odams Chemical Manure Co.

Phosphoric Acid—

Germany, 20 pkgs. Berger, Kahler, & Co.

" 3 Burgoyne & Co.

" "

" "

" "

" "

Pitch—
N. Russia, 350 brls. Fellows, Morton, & Co.

Plumbago—
Ceylon, 101 brls. J. Thredder, Son, & Co.
" 64 bls. Cayzer, Irvine, & Co.

E. Indies, 204 A. Hagan
Ceylon, 203 cks. Prop. Sun Wf.
Rangoon, 73 brls. Ross & Deering
Ceylon, 305 R. G. Hall & Co.
Germany, 170 cs. Prep. Scott's Wf.

Potassium Bicarbonate—
Holland, 27 pkgs. A. & M. Zimmermann

Potassium Permanganate—
Holland, 10 pkgs. Carey & Sons

Potassium Sulphate—
France, 50 pkgs. Petri Bros.
" 500 Anglo-Contl. G. Wks.
Germany, 210 W. G. Blagden
" 250 Co-op. Lightgr. Association, Ltd.

Pumice Stone—
Canary, 1 t. W. J. Davies & Sons

Pyrites—
Spain, 950 t. Naylor, Benzon, & Co.
" 1,976 C. Tennant, Sons, & Co.

Rosin—
U. States, 531 brls. Prod. Brokers Co

Saltpetre—
Germany, 40 cks. J. Hall & Sons
E. Indies, 700 bgs. C. Wimble & Co.
" 315 Ralli Bros.

Germany, 500 Anglo-Contl. G. Wks.
" 70 cks. T. Merry & Sons
" 2 Brown & Elmslie

Sodium Hyposulphite—
Holland, 300 pkgs. Beresford & Co.

Starch—
Germany, 200 pkgs. L. Suto & Co.
" 100 Philipps & Graves

Holland, 40 Carey & Sons
" 20 Soundy & Sons
" 20 Landoe, Anderson & Co.

" 212 G. Rahn & Co.
" 40 J. Barber & Co.
Belgium, 179 F. Claydon & Co.

" 130 Leach & Co.
" 530 Prop. Scott's Wf.
" 160 Sawyer, Sons & Co.

U. States, 40 W. Balchin
" 305 Horne & Co.

Stearine—
France, 100 bgs. H. Hill & Sons
Belgium, 24
France, 130 Walbaum & Tosetti

Talc—
Italy, £90 A. H. Smith

Tar—
U. States, 3 brls. Allan Bros. & Co.

Tartaric Acid—
Holland, 3 pkgs. Kirkpatrick & Co.
" 10 B. & F. Wf. Co.

France, 8
" "

Ultramarine—
Belgium, 2 brls. W. Harrison & Co.
Holland, 6 pkgs. Haefner, Hilpert, & Co.

Belgium, 42 cks. Leach & Co.
Holland, 5 5 pkgs. G. Rahn & Co.

Varnish—
France, 7 pkgs. Flageollet & Co.
U. States, 42 Staynes & Smith

Verdigris—
France, 1 pkge. H. Lorenz

Vermillion—
Germany, 4 cks. Philipps & Graves

White Lead—
Germany, 2 cks. H. Lambert
France, 45 W. Harrison & Co.

Wood Pulp—
Holland, 480 pkgs. G. F. Green & Co.
" 1,500 Little & Johnston

" 1,304 E. J. & W. Goldsmith
" 332 Henderson, Craig & Co.

" 64 Thames S. T. & L. Co., Ltd.
Norway, 406 W. G. Taylor & Co.

Germany, 26 Becker & Co.
" 609 W. Friedlander
" 511 E. J. & W. Goldsmith

Holland, 34 H. Lambert
" 100 C. S. Lovell
N. Russia, 91 Thames S. T. & L. Co., Ltd.

Zinc Oxide—
Germany, 20 cks. Beresford & Co.
Holland, 125 brls. M. Ashby, Ltd.
" 10 Fellows, Morton, & Co. Ltd.

LIVERPOOL.

Week ending November 29th.

Antimony—
Antofagasta, 294 bgs. Widemann, Broscher

" 759 Kleinwort, Sons, & Co.
" 441 Cunard S. S. Co., Ltd.

Havre, 2 cs.

Antimony Ore—
Antofagasta, 303 bgs. 262 sks. A. Gibbs & Sons

" 150 709 Kleinwort, Sons, & Co.

Barytes—
Antwerp, 22 cks.

Rotterdam, 22

Benzine—
New York, 500 brls.

Bone Ash—
B. Ayres, 100 bgs.

Bone Meal—
Karachi, 1,000 bgs. Ralli Bros.
Bombay, 3,000

Boracic Acid—
Leghorn, 108 cks.

Borate of Lime—
Antofagasta, 2,525 bgs.

Borax—
Valparaiso, 5 bgs.

Caoutchouc—
Havre, 17 cs. Cunard S. S. Co., Ltd.

Castor Oil—
Marseilles, 119 brls.
Bombay, 1 dm. J. Duckworth

Leghorn, 10 cs.
Calcutta, 300

Chloroform—
Havre, 1 cs. Cunard S. S. Co., Ltd.

Chrome Ore—
Volo, 260 t. G. G. Blackwell

Cod Oil—
Hamburg, 5 brls.

Colours—
Hamburg, 110 cks. 10 cs.
Antwerp, 4 brls. J. T. Fletcher & Co.

Rotterdam, 4 cks. 30 cs.

Copper Chloride—
Rotterdam, 2 cks.

Cottonseed Oil—
Genoa, 10 cs. C. Schneider & Co.
N. Orleans, 500 brls.

Dyestuffs—
Algarrobia, 468 bgs. Balfour, Williamson
Carrizal, 112 sks. A. W. Real

Valparaiso, 17 cs. Papayanni & Jeremias

Patras, 44 cks. German Bank of London

Cochineal—
Las Palmas, 7 bgs. Canary Islands Trading Co.

" 3 S. J. Paddgett & Co.

Divi Divi—
Hamburg, 39 bgs.

Extracts—
Trieste, 585 brls. Oak Extract Co., Ltd.

Baltimore, 25 A. Schloesser & Co.

Nantes, 160 600 cks.

Marseilles, 110

Bordeaux, 6

New York, 3,741 ps.

Fustic—
Baltimore, 12 cks.

Madder—
Rotterdam, 12 cks.

Myrabolams—
Bombay, 4,613 bgs.
" 3,030 D. Sassoon & Co.
" 1,002 E. D. Sassoon & Co.

Orchella—
Lisbon, 43 bls.

Saffron—
Valencia, 6 cs.

Shumac—
Fiume, 200 bgs.
Palermo, 1,930 358 bls.

Turmeric—
Bombay, 8 bgs. J. Duckworth

Valonia—
Patras, 400 bgs.

" 400 G. E. Spiropulo
" 10 Papayanni & Jeremias

Syra, 488 G. T. Scrini

Farina—
Fiume, 40 bgs.
Stettin, 3,750 Browne, Geveke & Co.

Glucose—
New York, 60 pls. 1,315 brls.
Hamburg, 60 cks.
Bremen, 100 bgs.

Iodine—
Valparaiso, 12 brls.

Infusorial Earth—
Hamburg, 17 bgs.

Lamp Black—
Antwerp, 40 cks.

Limestone—
Antwerp, 1 crt. J. T. Fletcher & Co.

Magnesium Ore—
Punta Arenas, 143 bgs. J. Hoare & Co.

Manganese Ore—
Carrizal, qty.
Coquimbo, "

Manure—
New York, 9 brls. E. W. Fyffe, Son, & Co.

Mineral White—
Fiume, 100 brls. 400 bgs.

Naphtha—
New York, 6,500 brls.

Ochre—
Cartagena, 16 brls.
Marseilles, 25

Paint—
Hamburg, 50 dms. 10 cs.

Paraffin Scale—
Philadelphia, 225 brls.

Paraffin Wax—
Philadelphia, 100 brls.
Hamburg, 2 cs.

Phosphate—
Antwerp, 360 t.
Savannah, 1,190

Phosphate Rock—
Brunswick, 999 t. W. H. Stead & Co.

Potash—
Dunkirk, 60 dms.
Havre, 1 cs. Cunard S. S. Co., Ltd.

Potassium Carbonate—
Hamburg, 11 cks.

Potassium Chlorate—
Syra, 20 kgs.
Amsterdam, 3 cks.

Pumice Stone—
Messina, 20 brls.

Pyrites—
Huelva, 2,142 t. Matheson & Co.

Rosin—
Boston, 1 brl.
Rotterdam, 3 cks.

Saltpetre—
Hamburg, 22 cks. 125 kgs. 5 brls.

Soap—
New York, 2 cs.
Philadelphia, 32 1 crt. Boot Pure Drug Co.

Marseilles, 22 352 bxs.
Leghorn, 650 bxs. Weaver & Sterry

" 55 cs.

Soapstone—
Genoa, 304 bgs. W. Harrison & Co.

" 300

Sodium Nitrate—
Iquique, 7,264 bgs.

Starch—
Fiume, 50 bgs.
" 100 C. T. Vander Veen Bros.

Antwerp, 190 cs. J. T. Fletcher & Co.

Rotterdam, 77
Hamburg, 132

Stearine—
Antwerp, 2 cks. 91 bgs.
Rotterdam, 10 cs.

Sulphur—
Catania, 124 brls. 115 bgs.

Tallow—
B. Ayres, 43 pps.

Tar—
Bordeaux, 3 cs.

Tartar—
Bordeaux, 44 cks.
Naples, 2

Tartaric Acid—
Rotterdam, 4 cks.

Ultramarine—
Hamburg, 50 cs.
Bremen, 10 cks.

Waste Salt—
Hamburg, 7,777 bgs.

White Lead—
Antwerp, 11 cks. J. T. Fletcher & Co.

Rotterdam, 45

Wood Pulp—
Sundsvall, 5,935 bls. G. Schjoth & Co.
Stugsund, 1,044
Rotterdam, 186
Hamburg, 610
Gothenburg, 136
Sannesund, 2,996

Zinc Oxide—
Antwerp, 45 brls.
Rotterdam, 100 cks.

Zinc White—
Hamburg, 8 cks.
Rotterdam, 75

MANCHESTER.

Week ending December 1st.

Albumen—
Hamburg, 3 cks.

Aniline Colours—
Ochre, 2 cks.

Borate of Manganese—
Hamburg, 1 cs.

Chloride—
Rotterdam, 5 brls.

Colours—
Rotterdam, 7 cks. 4 bxs. 27 brls. 35 cs.
Treport, 32 pkgs.
4 cks.

Cream of Tartar—
Rotterdam, 2 cks.

Dyestuffs—
Annatto, 10 cks. J. & P. Hutchison

Extracts—
Treport, 10 cks. 50 cs.

Farina—
Rotterdam, 50 bgs.

Lead Acetate—
Rotterdam, 39 cks.

Litharge—
Rotterdam, 42 cks.

Naphthol—
Hamburg, 12 cks.

Ochre—
Treport, 38 cks.

Palm Oil—
Hamburg, 10 cks.

Potash—
Hamburg, 10 cks.

Saltpetre—
Hamburg, 22 cks.

Sodium Acetate—
Treport, 21 cks.

Sodium Aluminate—
Hamburg, 3 cks.

Sodium Fluoride—
Hamburg, 1 ck.

Starch—
Hamburg, 322 cs.

Tannin—
Hamburg, 9 cks.

Tar—
Hamburg, 7 brls.

Tartar—
Bordeaux, 5 cks. J. & P. Hutchison

Hamburg, 2

Tartar Emetic—
Hamburg, 4 cks.

Ultramarine—
Hamburg, 5 cks.

Waste Salt—
Hamburg, qty.

Wood Pulp—		
Christiania,	160 bls.	W. H. Ingram
Drammen,	580	"
"	250	H. Raby & Mather
Wood Spirit—		
Hamburg,	5 dms.	
Zinc Sulphate—		
Rotterdam,	5 brls.	
Zinc White—		
Rotterdam,	10 cks.	

HULL.

Week ending December 1st.

Acetic Acid—		
Hamburg,	2 cs. 7 bls.	Hutchinson & Son
Acid—		
Rotterdam,	10 cbys.	W. & C. L. Ringrose
Bari,	13 cks.	Wilson, Sons, & Co., Ltd.
Albumen—		
Riga,	9 cks.	Wilson, Sons, & Co., Ltd.
Aniline—		
Rotterdam,	1 ck.	W. & C. L. Ringrose
Barytes—		
Bremen,	37 cks.	G. Holmes & Co.
Rotterdam,	95	W. & C. L. Ringrose
Binitro Toluol—		
Rotterdam,	6 cks.	W. & C. L. Ringrose
Bleaching Powder—		
Abo,	9 cks.	J. Good & Sons
Chemicals (otherwise undescribed)		
Bremen,	1 bkt. 1 kg. 6 cs.	Veltmann & Co.
Hamburg,	10 cks.	Wilson, Sons, & Co., Ltd.
China Clay—		
Hamburg,	127 cks.	Wilson, Sons, & Co., Ltd.
Cod Oil—		
Drontheim,	1 brl.	Wilson, Sons, & Co., Ltd.
Aalesund,	230	"
Christiania,	75 cs.	"
Colours—		
Danzig,	3 cks.	
Rotterdam,	8	4 cs. 17 pks. Hutchinson & Son
"	5	W. & C. L. Ringrose
Antwerp,	1	Wilson, Sons, & Co., Ltd.
Hamburg,	1	Bailey & Leatham
Dextrine—		
Stettin,	200 bgs.	Wilson, Sons, & Co., Ltd.
Dyestuffs—		
Alizarine		
Rotterdam,	31 cks.	W. & C. L. Ringrose
Sumac		
Trieste,	88 bgs.	Wilson, Sons, & Co., Ltd.
Palermo,	643	"
"	525	"
Valonia		
Smyrna,	677 t.	
Trieste,	17 bgs.	Wilson, Sons, & Co., Ltd.
Farina—		
Stettin,	300 bgs.	Wilson, Sons, & Co., Ltd.
Ghent,	198 cs.	"
Glucose—		
Rotterdam,	75 bgs.	Hutchinson & Son
Stettin,	300	Wilson, Sons, & Co., Ltd.
Bremen,	60	"
Manure—		
Ghent,	304 t. 500 bgs.	Wilson, Sons, & Co., Ltd.
Oxalic Acid—		
Rotterdam,	6 cks.	W. & C. L. Ringrose
Paint—		
New York,	14 cs.	Wilson, Sons, & Co., Ltd.

Phosphate—		
Bremen,	206 t.	
Port Royal, S.C.,	2,700	Hammond, Emes, & Co.

Pitch—		
Antwerp,	36 cks.	H. F. Pudsey
Potash—		
Rotterdam,	9 cks.	W. & C. L. Ringrose
Dunkirk,	4 dms.	Wilson, Sons, & Co., Ltd.

Pumice Stone—		
Messina,	50 cs. 101 bgs. 103 pks.	Wilson, Sons, & Co., Ltd.
Salt—		
Hamburg,	20 t.	Wilson, Sons, & Co., Ltd.

Soap—		
Bari,	156 cs.	
Starch—		
Bremen,	1,451 cs.	Veltmann & Co.

Stearine—		
Antwerp,	10 bgs.	Wilson, Sons, & Co., Ltd.
Trieste,	1 brl.	"

Sulphur—		
Catania,	480 pks.	Wilson, Sons, & Co., Ltd.
"	900 bgs.	125 t.

Talc—		
Trieste,	7 bgs.	Wilson, Sons, & Co., Ltd.

Tartaric Acid—		
Rotterdam,	4 cks.	Hutchinson & Son

Ultramarine—		
Bremen,	8 cs.	
Rotterdam,	1	W. & C. L. Ringrose

Yarnish—		
New York,	2 pks.	Wilson, Sons, & Co., Ltd.
Antwerp,	3 brls.	J. & T. Seddon

Waste Salt—		
Hamburg,	200 bgs.	Bailey & Leatham
White Lead—		
Rotterdam,	28 cks.	Hutchinson & Son

Wood Pulp—		
Abo,	27 bls.	Furley & Co.
Hango,	75	J. Good & Sons
Antwerp,	45	"

Zinc Oxide—		
Rotterdam,	50 cks.	Bailey & Leatham
"	25	W. & C. L. Ringrose

Zinc White—		
Rotterdam,	15 cks.	Hutchinson & Son

GLASGOW.

Week ending December 6th.

Acetic Acid—		
Rotterdam,	15 cks.	J. Rankine & Son
Gothenburg,	2 carboys	
Aniline—		
Rotterdam,	1 ck.	J. Rankine & Son
Aniline Colour—		
Hamburg,	5 cks.	
Antimony Sulphate—		
Hamburg,	1 ck.	
Arachide Oil—		
Rotterdam,	3 cks.	
Asbestos—		
Genoa,	16 pks. 5 cs.	
Montreal,	240 bgs.	J. Wotherpoon & Son
Barytes—		
Rotterdam,	45 pks.	
"	36 cks.	J. Rankine & Son
Boracic Acid—		
Leighorn,	18 cks.	
Castor Oil—		
Antwerp,	57 cks.	
Chemicals (otherwise undescribed)		
Rotterdam,	4 cks.	J. Rankine & Son
Hamburg,	4 cs.	
Colours—		
Rotterdam,	29 pks.	
Amsterdam,	2 cks.	

Rouen,	3	
Rotterdam,	13 cks. 4 bxs. 2 kgs.	J. Rankine & Son

Cottonseed Oil—		
N. York,	6 brls.	

Cream of Tartar—		
Messina,	4 cks.	

Dyestuffs—		
Alizarine		
Rotterdam,	226 pks.	
"	1 brl. 1 bx.	J. Rankine & Son

Extracts		
Antwerp,	1 ck.	
Genoa,	70 brls.	
Fiume,	300 cks.	

Logwood		
Jamaica,	654 tns.	W. Connal & Co.
Sumac		
Palermo,	450 bgs.	Wm Buntin & Co.

"	50	T. W. M'Alpine & Co.
"	94	80 bls.

French Chalk—		
Leghorn,	20 cs.	
Fiume,	100 bgs.	

Iron Oxide—		
Fiume,	52 cks.	Ferguson & Reid

Lampblack—		
Gothenburg,	10 brls.	

Ochre—		
Leghorn,	38 bgs.	

Paint—		
Montreal,	20 kgs. 12 brls.	
N. York,	2	

Plumbago—		
Genoa,	80 bgs.	

Potassium Carbonate—		
Hamburg,	31 cks.	

Pumice Stone—		
Messina,	21 cs.	

Rosin—		
N. York,	500 brls.	

Salt—		
St. John's N.F.,	75 bgs.	

Soap—		
Leghorn,	30 cs.	
Fiume,	208	
Messina,	27	
N. York,	19	133 brls.

Sodium Acetate—		
Rouen,	33 pks.	

Starch—		
Montreal,	25 bxs.	
Amsterdam,	20	
Fiume,	50 bgs.	

Stearine—		
Rotterdam,	15 cks.	J. Rankine & Son

Sulphate of Barytes—		
Antwerp,	300 bgs. 63 cks.	

Sulphur—		
Fiume,	25 brls.	
Messina,	400 bgs.	T. Lawrie
"	125	

Tallow—		
N. York,	61 trcs.	

Tannin—		
Hamburg,	3 cs.	

Tar—		
N. York,	600 brls.	

Tartar Emetic—		
Hamburg,	1 cs.	

Tartaric Acid—		
Messina,	12 cks.	Bryce & Rumpff
"	8 cks.	W. N. Gemmell

Ultramarine—		
Rotterdam,	1 cs.	J. Rankine & Son
Hamburg,	5	2 cks.

Yarnish—		
Montreal,	1 brl.	
N. York,	2	2 cs.

Waste Salt—		
Hamburg,	2,242 bgs. 455 cks.	

White Lead—		
Rotterdam,	36 cks. 17 cs.	J. Rankine & Son

Wood Pulp—		
Christiania,	2,123 bls.	
Hamburg,	300	

Zinc White—		
Rotterdam,	10 cks. 150 cs.	J. Rankine & Son

TYNE.

Week ending December 1st.

Alum Earth—		
Hamburg,	91 cks.	Tyne S. S. Co.

Barytes—		
Rotterdam,	1,788 bgs. 363	J. Hulsens & Co. Tyne S. S. Co.

Colours—		
Hamburg,	51 cs.	Tyne S. S. Co.
Rotterdam,	5	"

Limestone—		
Antwerp,	2 crts.	Tyne S. S. Co.

Salt—		
Hamburg,	216 t.	

Saltpetre—		
Hamburg,	16 cks.	Tyne S. S. Co.

Soap—		
Rotterdam,	3 cs.	Tyne S. S. Co.

Starch—		
Rotterdam,	88 cs.	Tyne S. S. Co.

Stearine—		
Antwerp,	13 bgs.	Tyne S. S. Co.

Sulphur Ore—		
Ponaron,	614 t.	Mason & Barry

Wood Pulp—		
Christiania,	160 bls.	

Zinc Oxide—		
Antwerp,	20 brls.	Tyne S. S. Co.
Rotterdam,	20 cks.	"

GOOLE.

Week ending November 28th.

Aniline Oil—		
Rotterdam,	1 ck.	

Antimony—		
Boulogne,	2 cks.	

Colours—		
Rotterdam,	1 ck.	

Dyestuffs—		
Alizarine		
Rotterdam,	71 pks.	

Extracts		
Ghent,	100 cks.	

Logwood		
Hamburg,	312 pcs.	

Dyestuffs (otherwise undescribed)		
Boulogne,	17 cks. 7 cs.	
Ghent,	9	
Rotterdam,	120 pks.	

Farina—		
Hamburg,	550 bgs.	
Delfsryhl,	300	

Glucose—		
Hamburg,	3 cks.	
Calais,	100 bgs.	

Potash—		
Rotterdam,	20 cks.	
Dunkirk,	20 dms.	

Saltpetre—		
Hamburg,	10 cks.	
Antwerp,	268 bgs.	

Yarnish—		
Antwerp,	31 cks.	

Waste Salt—		
Hamburg,	272 t. 170 cks.	

Zinc Oxide—		
Antwerp,	30 cks.	

GRIMSBY.

Week ending December 1st.

Albumen—		
Hamburg,	5 cs.	

Aniline Oil—		
Hamburg,	2 cks. 19 pks.	
Antwerp,	67	
Rotterdam,	1 cs.	

Caoutchouc—		
Hamburg,	2 bls.	

Chemicals (otherwise undescribed)		
Rotterdam,	12 pks.	
Hamburg,	14	23 cs. 13 cks.

Colours—		
Rotterdam,	100 bgs.	
Hamburg,	13 cks. 7 cs.	
Antwerp,	18	10

Dyestuffs (otherwise undescribed)		
Dieppe,	7 cks.	

Farina—		
Hamburg,	230 bgs.	

EXPORTS OF CHEMICAL PRODUCTS OF THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 5th.

Acetic Acid—		
Dunedin, 12 c.	£23	
Alum—		
M. Video, 2 t.	£13	
Ammonium Carbonate—		
B. Ayres, 2 cs.	£9	
Cologne, 10 c.	20	
Ammonium Chloride—		
Cologne, 10 c.	£26	
Ammonium Sulphate—		
Demerara, 50 t.	£612	
Arsenic—		
Dunedin, 1 t.	£16	
Borax—		
Auckland, 1 t. 2 c.	£24	
Hamburg, 2 11	56	
Melbourne, 10 15	565	
Calcined Magnesia—		
B. Ayres, 2 cs.	£54	
Carbolic Acid—		
Dusseldorf, 40 cks.	£279	
Carbonic Acid Gas—		
Hamburg, 4 cs.	£34	
Caustic Soda—		
Adelaide, 11 c.	£13	
Melbourne, 3 t.	63	
Sydney, 1 10	36	
Newcastle, 44 19	457	
Auckland, 3	32	
Dunedin, 10	11	
Chemicals (otherwise undes.)—		
Dunedin, 5 c.	£18	
Rosario, 14	85	
B. Ayres, 7 t. 19	410	
Mauritius, 2 cs.	13	
Rio de Janeiro, 5 kgs.	24	
Citric Acid—		
Marseilles, 2 c.	£14	
Bombay, 2 cs.	6	
Hamburg, 10 kgs.	62	
Genoa, 1 t. 10	210	
B. Ayres, 3	22	
Odessa, 6	34	
Calcutta, 1 cs.	6	
Brussels, 5 cks.	34	
Coal Products—		
Aniline Dyes—		
Calcutta, 1 cs.	£27	
Anthracene		
Dusseldorf, 51 cks.	£357	
Benzol		
Treport, 17 cks.	£167	
Rotterdam, 46 pns.	307	
Creosote		
Mauritius, 2 cs.	£20	
Naphtha		
Melbourne, 3 cs.	£8	
Naphthaline		
New York, 25 cks.	£45	
Copenhagen, 7	10	
Pitch		
Gijon, 1,135 t.	£2,038	
Boston, 4,311 bgs. 400 brls.	931	
New York, 28 cks.	35	
Alexandria, 200	80	
Antwerp, 506 t.	1,052	
Dunkirk, 485	1,775	
N. Orleans, 100	58	
Tar		
E. London, 200 dms.	£7	
Coal Products (otherwise undes.)—		
Melbourne, 35 brls. 3 crts.	£45	
Cobalt Oxide—		
Hamburg, 4 c.	£95	
Copper Sulphate—		
Dunedin, 1 t. 7 c.	£21	
Genoa, 1 7	20	
Stettin, 1 5	19	
Cream of Tartar—		
Dunedin, 5 c.	£17	
Algoa Bay, 22	22	
Melbourne, 2 t.	135	
Disinfectants—		
Algoa Bay, 11 cs. 2 t. 2 c. 70 dms.	£75	
Cape Town, 53	84	
Calcutta, 56 pkgs. 7	56	
Penang, 12 c.	26	
Guano—		
Jersey, 86 t.	£753	
Hydrofluoric Acid—		
E. London, 3 cs.	£20	
Hypophosphites of Lime & Soda		
Barcelona, 7 cs.	£80	

Lime—		
Patagonia, 78 cks.	£35	
Magnesia—		
B. Ayres, 6 cs.	£31	
Manure—		
Jersey, 219 t. 19 c.	£618	
Havre, 5	50	
Melbourne, 4 1	30	
Jamaica, 23 18	140	
Phosphoric Acid—		
Philadelphia, 1 t. 12 c.	£88	
Phosphorus—		
Dunedin, 900 lbs.	£90	
New York, 30 cs.	138	
Potassium—		
Melbourne, 2 t.	£131	
Potassium Bichromate—		
M. Video, 13 c.	£29	
Potassium Chlorate—		
Odessa, 1 t. 1 c.	£69	
Gothenburg, 5 kgs.	13	
St. Kitts, 10	26	
Potassium Cyanide—		
B. Ayres, 2 cs.	£11	
Saltpetre—		
Sydney, 3 t.	£69	
Auckland, 10 c.	11	
Corinto, 10	12	
Mauritius, 8	104	
Sheep Dip—		
Wellington, 520 cs.	£1,560	
Auckland, 90 dms.	75	
M. Video, 157	62	
Delagoa Bay, 150	34	
B. Ayres, 1,500 cs.	4,500	
Punta Arenas, 250	510	
Christchurch, 6 cks.	22	
Soda Crystals—		
M. Video, 2 t.	£5	
Natal, 1 10 c.	4	
Sodium—		
Melbourne, 1 c.	£3	
New York, 3 t. 1	447	
Sodium Arsenate—		
Sydney, 1 t.	£12	
Sodium Bicarbonate—		
Algoa Bay, 6 c.	£5	
Singapore, 3	6	
Sodium Hyposulphite—		
Dunedin, 10 c.	£5	
Sodium Silicate—		
Terceira, 2 t. 2 c.	£8	
Sodium Tartrate—		
B. Ayres, 2 cks.	£13	
Sulphur—		
Pt. Elizabeth, 6 t. 14 c.	£31	
E. London, 3 11	36	
Patagonia, 150 cks.	139	
Sulphuric Acid—		
Colombo, 1 t. 10 c.	13	
Algoa Bay, 7 13	48	
Singapore, 15	17	
Tartaric Acid—		
Dunedin, 3 c.	£14	
Adelaide, 10	47	
Algoa Bay, 2	11	
Bombay, 4 cs.	14	
Melbourne, 2 t. 10	230	

LIVERPOOL.

Week ending December 5th.

Alum—		
Sydney, 3 t. 6 c.	£17	
Rettimo, 13	2	
Malta, 1	5	
Lisbon, 2 16	16	
Volo, 1 12	7	
Rosario, 7 10 1 q.	34	
Rio de Janeiro, 19 2	5	
Havana, 4 8 3 16	16	
Calcutta, 15 1 1 64	64	
Tripoli, 3 19 18	18	
Bombay, 12 8 2 76	76	
Alumina Sulphate—		
Calcutta, 60 t. 16 c. 1 q.	£169	
Ammonia—		
Baltimore, 2 c.	£5	
Ammonium Carbonate—		
Libau, 1 t. 4 c. 3 q.	£42	
Riga, 7 2 12	12	
Leghorn, 1 5 45	45	
Varan, 4 5	5	
Gothenburg, 1 4 2 45	45	
Marseilles, 1 10 49	49	
Ammonium Chloride—		
Trieste, 1 t.	£35	
Smyrna, 12 o.	21	
Alexandria, 1	36	
Bari, 15	29	
Bombay, 9	327	
Kurrachee, 8 brls.	72	
Marseilles, 1 5	45	
Antwerp, 1 11 3 q.	40	
Ammonium Sulphate—		
Valencia, 232 t. 16 c.	£2,983	
Venice, 10 4 1 q.	140	
Barcelona, 20 5	257	
Las Palmas, 35 8	433	
Demerara, 8 19 1	120	
Nickerie, 5 1 3	64	
Amorphous Phosphorus—		
Yokohama, 10 c.	£125	
Asbestos—		
Valparaiso, 1 cs.		
Shanghai, 2		
Barium Chlorate—		
Venice, 1 t.	£80	
Rotterdam, 5 c.	24	
Barytes—		
Rotterdam, 2 brls.		
Venice, 50 kgs.		
Bombay, 20		
Bleaching Powder—		
Bombay, 66 cks. 15 dms.		
Boston, 536 20 bxs.		
Naples, 37		
New York, 170		
Odessa, 5		
Baltimore, 79		
B. Ayres, 5		
Dunkirk, 18		
Ferrol, 2		
Malaga, 10		
Newport News, 20 brls.		
New York, 394		
Philadelphia, 56 sks.		
Piræus, 2		
Rio de Janeiro, 7 18 cs.		
Rouen, 15		
Boric Acid—		
Genoa, 5 c. 3 q.	£9	
Rotterdam, 6 t. 2	219	
Philadelphia, 1 12	43	
Borax—		
Rio de Janeiro, 6 c.	£7	
Bremen, 9	10	
Hamburg, 11 t. 4 1 q.	225	
Santiago, 1 3	23	
Antwerp, 10 1	201	
Rotterdam, 8 10	213	
Rosario, 1 4	20	
Philadelphia, 17	353	
New York, 138 cks.	229	
Boston, 25	107	
Calcium Chloride—		
M. Video, 2 t. 10 c.	£8	
Boston, 23 17	21	
New York, 10 2	50	
Calcutta, 2 1	6	
Caoutchouc—		
Rangoon, 2 cs.		
Carbolic Acid—		
Rosario, 5 c.	£18	
Constantinople, 4 1 q.	14	
Newport News, 40 cks.	289	
Lisbon, 3 1	6	
Hamburg, 12 t. 10	567	
Rotterdam, 24 10	1,100	
Caustic Potash—		
Calcutta, 2 c.	£5	
Caustic Soda—		
Alexandria, 40 dms.		
Amsterdam, 238 5 brls.		
Ancona, 10		
Antwerp, 26		
Bari, 108		
Bombay, 68		
Brisbane, 15		
Calcutta, 173		
Corral, 10		
E. London, 20		
Fiume, 45		
Genoa, 94		
Hamburg, 35		
Hio, 50		
Hong Kong, 2 cks.		
Lisbon, 20		
Messina, 55		
N. York, 20 cs. 200	25 brls. 125 bxs.	
Odessa, 32		
Philadelphia, 85		
Reval, 35		
St. Michael's, 36		

Salonica, 35		
Trieste, 30		
Valparaiso, 115		
Yokohama, 335		
Baltimore, 170		
Barcelona, 132	20 cks.	
Bilbao, 50	18 22 pkgs.	
Boston, 101	30 bxs. 25 brls.	
B. Ayres, 51		
Iquique, 10		
Lisbon, 15		
Maranham, 10		
Marseilles, 100		
N. Orleans, 250		
New York, 410	35	
Rio de Janeiro, 4		
San Francisco, 50		
Santos, 50		
Singapore, 7		
Tampico, 110		
Tarragona, 184	80 cks.	
Chemicals (otherwise undescribed)		
Hamburg, 6 c. 1 q.	£11	
Baltimore, 5	50	
Volo, 4	7	
Mersyne, 4	7	
Trieste, 1 t.	37	
China Clay—		
Barcelona, 20 t.		
Bombay, 62	20 cks.	
Maranham, 3		
Barcelona, 15 13 c.		
Philadelphia, 330	10	
Rio de Janeiro, 67 bgs.		
Chlorate of Lime—		
Boston, 9 c.	£6	
Coal Products—		
Aniline Oil		
Genoa, 12 dms.		
Aniline Salt		
Boston, 13 cks. 22 cs.		
Anthracene		
Rotterdam, 30 cks.		
Pitch		
Cette, 1,028 t. 19 c.		
Rouen, 2 cks.		
Tonnay, 301		
Tar		
Manila, 10 brls.		
Philadelphia, 200		
Cabedello, 12		
Gaboon, 5 cks.		
Naples, 1		
San Benito, 20 dms.		
Cobalt Oxide—		
New York, 2 cs.	£50	
Copperas—		
Calcutta, 14 t. 8 c.	£32	
Alexandria, 6 1	12	
Copper Sulphate—		
Nantes, 10 t. 4 c. 3 q.	£155	
Bordeaux, 185 3	2,355	
Ancona, 5 3 2	72	
Amsterdam, 2 15 3	38	
Sydney, 14 10	208	
Melbourne, 3	43	
Rouen, 68 10 2	900	
Ghent, 3 1 1	44	
Alexandria, 2 1 2	30	
Charente, 50 1	750	
Santos, 1	15	
Gothenburg, 4 18 3	74	
Valparaiso, 8 4 1	109	
Havana, 1 13 1	24	
Genoa, 15	11	
Disinfectants—		
Rangoon, 40 dms.	£17	
Kingston, Ja., 16 pkgs.	35	
Boston, 2 c. 2 q.	6	
Corral, 4 2	11	
Farina—		
Antwerp, 15 bgs.		
Fluorspar—		
Antwerp, 6 t. 1 c.		
Guano—		
Valencia, 15 t.	£135	
Gaboon, 5 t.	£5	
Cabenda, 12 10 c.	12	
Bonny, 45	—	
Litharge—		
Santos, 2 cks.		
Magnesia—		
B. Ayres, 8 cs.		
Oporto, 1 kg.		

Magnesium Chloride—			
New York,	5 t. 2 c.		£14
Manure—			
Ghent,	5 t. 5 c. 2 q.		£32
Gd. Canary,	10		37
Las Palmas,	1		7
Antwerp,	78 13 3		266
Genoa,	136 6 2		310
Valencia,			
Metallic Sodium—			
Rotterdam,	4 t. 7 c. 2 q.		£974
Muriatic Acid—			
Bahia,	1 t. 4 c.		£2
Pernambuco,	1 t. 19		25
Nickel—			
Seville,	4 cks.		
Nitric Acid—			
Baltimore,	3 c.		£7
Ochre—			
Barcelona,	10 cks.		
Oxalic Acid—			
San Francisco,	1 t. 13 c.		£52
Paint—			
Alexandria,	1 ck. 94 dms.		4 kgs.
Cape Coast,	10		
Colon,	3		10
Gibraltar,			
Gd. Canary,			50
Guayaquil,			30
Havana, 12 cajas,			50
Hong Kong,			
La Union,			6
Lisbon,			
Manila,			13 cs.
New York,			
Ponce,			44
Rio de Janeiro,			20
Rotterdam,			7
St. Michaelis,			126 4
San Francisco,	8 brls.		130
San Juan,			104
Sierra Leone,			20
Vera Cruz,			
Amsterdam,	1 ck. 14		11
Antofagasta,	5		80
Barranquilla,			7
Benin,			
Bilbao, 2 bxs.			5
Bombay,			4
B. Ayres,	34		11
Bahia,			1
Cameroon,			
Ceara,			
Gibraltar,			
Hamburg,			10
Las Palmas,			160
Manaos,			
Para,			
Pt. Natal,			42
St. John's,			24
Valparaiso,	95		
Painters' Colours—			
Barbadoes,	100 bxs.		20 cs.
Bombay,	97 kgs.		100
B. Ayres,			23 cks.
Callao,			6
Cienfuegos,			
Constantinople,	50		1 brl.
Hamburg,			3
Havana,			3
Loanda,			3
Madras,	130		3
Manarham,			4
Matanzas,			3
Para,			25
Rio de Janeiro,			1 cs.
Algoa Bay,			3
Bordeaux, 2 bxs.			
Boston,			300
Cabedello,			70
Cape Town,			2
Cartagena, N.G.,			10
Ceara,			24
Colon,			84
E. London,			231
New York,			14
Santos,			4
Paraffin Wax—			
Antwerp,	9 cs.		
Phosphate—			
Barcelona,	25 t.		£92
Phosphorus—			
Shanghai,	3 t. 6 c.		£780
Pieric Acid—			
San Francisco,	3 t. 11 c. 2 q.		£310
Plumbago—			
Rosario,	2 cs.		
River Plate,	8 pkgs.		
Potassium Bichromate—			
Constantinople,	5 t. 3 c.		£210
Salonica,	1		47
Ferrol,	2		3 q.

Potassium Carbonate—			
New York,	7 t. 19 c.		£157
Potassium Chlorate—			
Santander,	1 t.		£75
Copenhagen,	5		294
Hamburg,	2		156
New York,	20 14 c.		1,052
Boston,	15		901
Hiogo,	16		938
Naples,			9
Calcutta,			10
Odessa,			10
Havana,	2		10
Shanghai,	4		5
Rotterdam,	1		10
Ancona,			10
St. Petersburg,	25		1,466
Potassium Prussiate—			
Hamburg,	12 c.		£54
Potassium Stannate—			
Bombay,	1 t. 6 c. 2 q.		£130
Rosin Oil—			
Antwerp,	10 cks.		
Malta,	5 brls.		
Salt—			
Amsterdam,	120 t.		
Antwerp,	314		
Black River,	50		
Bonny,	45		
Boston,	125		
Brisbane,	413		
Ghent,	420		
Melbourne,	25		
Mobile,	1,510		
Montego Bay,	3		10 c.
Noqui,	111		10
Norrköping,	62		10
Old Calabar,	90		6
Opobo,	60		
Pt. Natal,	20		
Savannah,	800		
Sierra Leone,	100		
Stockholm,	61		
Sydney,	338		
Talcabano,			
Algoa Bay,	28		
Baltimore,	130		
Barbadoes,	25		
Cameroon,	30		
Hamburg,	100		
Loango,	8		
M. Video,	1		1
Muculla,	5		7
N'castle, NSW,	410		
Portland,	221		
Quilla,	20		
Trinidad,	36		
Ukaka,	30		1
Valparaiso,	100		
Salt Cake—			
Leghorn,	30		£23
Baltimore,	623		1 c. 3 q.
Antwerp,	118		14
Saltpetre—			
Ceara,	2 t. 1 c.		£43
Rio de Janeiro,	19		2 q.
Sheep Dip—			
M. Video,	1 t. 5 c.		£34
B. Ayres,	20		661
Cape Town,	4		10
Pietermaritzburg,	110 dms.		30
Soap—			
Accra,	168 bxs.		
Alexandria,			1 cs. 9 brls.
Amsterdam,	100		
Bombay,			14
Boston,	1 ck.		
Cameroon,	125		
Christiania,	215		15 brls.
Corunna,			
Falmouth,	40		
Genoa,	70		
Gd. Canary,	266		
Guayaquil,	500		
Havre,	450		
Ilo Ilo,			1
Kingston,	1,400		
Kurrachee,	500		
Manaos,	120		
New York,	600		
Noqui,	12		
Parnahyba,	20		
Pt. Elizabeth,	520		50
Pt. Said,	20		1
Rangoon,	500		2
St. Lucia,	62		
Shanghai,	5,627		
Sierra Leone,	30		
Singapore,	2,687		
Trinidad,	1,000		
Vancouver,	7		
Vera Cruz,			1
Warri,	500		
Piræus,	90		

St. John's, N'fd.,	20		1
Algoa Bay,	325		20
Antwerp,			1,000
Bagdad,	50		
Barbadoes,	502		
Belize,	550		
Bermuda,	121		
Calamata,			14 pkgs.
Calcutta,			6
Cape Town,	50		50
Constantinople,	400		70
Demerara,	200		11
E. London,	100		
Gibraltar,	170		50
Gothenburg,			200
Kingston,	200		
Loanda,	20		
Loango,	12		
Madras,			48
Malta,			70
Manaos,	50		
Mandijo,	61		
Matadi,	15		
N. Orleans,	10		
New York,			75
Panama,			3
Penang,			35
Piræus,			31
Pt. Natal,			2,585
Rangoon,			5
St. John's,			13
St. Thomas,	500		
Salonica,	10		
San Juan,	50		
Santos,			2
Sapelli,	200		
Sav. La. Mar,	100		
Sydney,			1,850
Syria,	25		
Teneriffe,	740		
Trinidad,	1,000		
Warre,	100		
Soda Alkali—			
Bombay,	50 brls.		
Genoa,	85		
Halifax,	35		
Para,	50		
Piræus,	20		
Alicante,	32 cks.		
Soda Ash—			
Antwerp,	150 bgs.		5 cks.
Bombay,			17
Calcutta,			150
Callao,	50		40
Copenhagen,	40		
Genoa,	760		8
Hamburg,	600		
Lisbon,			27
Montreal,	320		37 tcs.
Naples,	120		
Oporto,			11
Philadelphia,	1,579		66
Rio de Janeiro,			150 brls.
Rosario,	70		
San Francisco,			66
Sydney,			267
Valparaiso,	5		
Baltimore,	12,018		291
Barcelona,			256
Boston,	2,848		31
B. Ayres,			815
Gothenburg,			11
Nauphia,	15		
Newport News,	400		
Porto Alegre,			77
Salonica,			115
Samarang,			20
Singapore,			19
New York,	11,430		61
Soda Crystals—			
B. Ayres,	14 kgs.		10 cks.
Montreal,	150		
Philadelphia,			292 brls.
Singapore,	12		
Valparaiso,	100		
Boston,			140 cks.
St. John's, N'fd.,			2 cs.
Santos,	13		
Sodium Bicarbonate—			
Antwerp,	10 brls.		
Hamburg,	2 cks.		7 pkgs.
Calcutta,	770 kgs.		
Genoa,	30 cs.		
Sodium Bicarbonate—			
Alexandretta,	10 kgs.		
Amsterdam,	20		
B. Ayres,	100		346 cks. 100 bgs.
Calcutta,	250		
Callao,	20		
Genoa,			11
Gothenburg,	50		
Halifax,	200		
Havana,	20		
Hong Kong,	20		
Kobe,	680		

Leghorn,	55		3
Montreal,	150		
Newcastle,	100		
New York,			334 brls.
Odessa,	50		
Oporto,	20		
Philadelphia,	200		100
Rotterdam,	60		
San Francisco,	300		
Singapore,	20		4
Smyrna,	40		
Sydney,	390		
Syria,	20		
Trinidad,	200		
Valparaiso,	60		
N. Orleans,	100		
St. John's, N'fd.,	60		
Aalborg,			4
Algoa Bay,	27		
Ancona,	23		
Antwerp,	100		
Barbadoes,	100		
Bombay,	125		
Boston,	50		20
Christiania,	15		2
Colombo,			2
Copenhagen,	100		12
Johannesburg,	20		
Libau,	150		
Marseilles,	70		
Naples,	95		
New York,			132
Piræus,	30		
Riga,	180		
Rio de Janeiro,	82		
St. John's, N'fd.,	5		
San Salvador,	40		
Trieste,	80		
Yokohama,	500		
Sodium Carbonate—			
New York,	56 brls.		
Boston,	168		
Sodium Chlorate—			
Hamburg,	20 kgs.		
Sodium Silicate—			
Callao,	8 brls.		
Oporto,	5		
Sydney,	4		
Sodium Sulphate—			
Rotterdam,	100 bgs.		
Sterontia—			
Hamburg,	2 t. 4 c.		£22
Libau,	6		10
Sulphur—			
Boston,	258 t. 18 c.		£242
Santos,	1		1 q.
Demerara,	15		8
Sulphuric Acid—			
Baltimore,	2 c.		£3
Nickerie,	15		3 q.
Pernambuco,	19		10
Hong Kong,	1 t. 10		18
Tartaric Acid—			
Havana,	2 c.		£15
Savanna,	1		1 q.

Aniline Colours—

Antwerp, 1 kg.

Aniline Oil—

Rotterdam, 12 dms.

Bleaching Powder—

Bilbao, 58 cks.

Paraffin Wax—

Barcelona, 50 bgs.

Hamburg, 30

Pitch—

Antwerp, 302 t. 19 c.

Rotterdam, 491

Potassium Bicarbonate—

Rio de Janeiro, 1 ck.

Soap—

Malta, 1 bx.

Soda—

Malta, 1 ck.

Sodium Silicate—

Bilbao, 35 cks.

Tallow—

Rotterdam, 21 cks.

Tar Salts—

Antwerp, 58 cks.

HULL.

Week ending December 1st.

Ammonium Sulphate—

Marseilles, 97 bgs.

Bleaching Powder—

Bombay, 31 cks.

Bremen, 10

Danzig, 9

Naples, 33

Borax—

Abo, 1 ck.

Christiania, 1 cs.

Caustic Soda—

Antwerp, 26 dms.

Bombay, 35

Danzig, 80

Hango, 2 cks

Leghorn, 17

Riga, 55

Chemicals (otherwise undescribed)

Antwerp, 1 ck. 21 cs.

Abo, 5

Bombay, 1,608 422 pks.

Bremen, 22

Bergen, 20

Copenhagen, 10 23

Christiania, 40 4 1,849 slbs

Danzig, 73 40 pks.

Genoa, 10

Gothenburg, 2 45 116

Hamburg, 2 12

Konigsberg, 5

Kurrachee, 346 100

Libau, 10

Naples, 10

New York, 53 pkgs

Rotterdam, 9 110

Reval, 8 20

Stettin, 8

China Clay—

Bergen, 3 t.

Cottonseed Oil—

Antwerp, 200 c.

Hamburg, 3,102

Konigsberg, 267

Leghorn, 110

Marseilles, 6

Naples, 101

Rotterdam, 2,774

Stockholm, 69

Stettin, 377

Dyestuffs (otherwise undescribed)

Christiania, 30 bgs.

Danzig, 1 cs. 1 ck.

Riga, 1

Linseed Oil—

Antwerp, 13 c.

Amsterdam, 4

Bombay, 475

Bergen, 69

Christiania, 536

Hamburg, 124

Kurrachee, 20

Rotterdam, 241

Stockholm, 202

Stavanger, 76

Manure—

Dunkirk, 50 t.

Naphtha—

Rotterdam, 50 cks.

Ochre—

Antwerp, 3 cks.

Copenhagen, 3

Painters' Colours—

Antwerp, 26 pks. 15 cks. 2 cs. 21 dms

Amsterdam, 18 1

Bombay, 570 pks. 6 209

Bergen, 1

Copenhagen, 13 1 60

Christiania, 1 1

Drontheim, 4 30

Genoa, 80 pks. 31

Gothenburg, 4

Ghent, 5

Harlingen, 2

Leghorn, 25

Marseilles, 4

Naples, 19 2

New York, 152

Rotterdam, 15 1 pkge.

Reval, 16

Rouen, 6

Stockholm, 3

Stettin, 4

Phosphorus—

Hamburg, 20 cs.

Pitch—

Antwerp, 180 t.

Dunkirk, 150

Slag—

Bombay, 2 t.

Tallow—

Bombay, 31 cks.

Gothenburg, 10

Rotterdam, 33

Tar—

Rotterdam, 3 cks.

Stockholm, 15

Antwerp, 2

Hamburg, 2

Terra Alba—

New York, 300 cks.

Turpentine—

Amsterdam, 1 dm.

Bombay, 105

Varnish—

Antwerp, 12 cks 42 pkgs.

Bombay, 95 dms.

Bergen, 1

Copenhagen, 1

Christiania, 1

Whiting—

Hamburg, 20 bgs.

GLASGOW.

Week ending December 6th.

Alkali—

Philippines, 8 t. 16½ c. £74

Ammonium Sulphate—

Hamburg, 50 t. 15 c. £587

Demerara, 295 8¼ £3,635. 108.

Mauritius, 5 17 £80

Spain, 300 16½ 2 660

Carbolic Acid—

Rotterdam, 25 cks. £70

Caustic Soda—

Rouen, 6 t. 13¾ c. £53

Chemicals (otherwise undescribed)

Cape Colony, £32

Coal Products—

Pitch

Danzig, 60 t. £107 108.

Bordeaux, 106 5 c. £150

Santander, 638 16 1,013

Oporto, 154 9 200

Tar

Danzig, 600 brls. £270

Rangoon, 225 rnlts. 01

Tar and Pitch

Straits, £170

Copper Sulphate—

Rouen, 19 t. 19 c. £309

Cottonseed Oil—

Philippines, 500 glns. £46

Dried Blood—

Rouen, 10 t. 2½ c. £80

Glucose—

Cape Colony, 3 t. 18½ c. £41

Guano—

Trinidad, 10 t. £140

Linseed Oil—

Trinidad, 1 t. £26

Rangoon, 3 4¾ c 76

Cape Colony, 260 glns. 28

Manganese—

Rotterdam, 11 cks. £50

Manure—

Trinidad, 30 t. £280

Spain, 34 12¾ c. 281

Paint—

Rangoon, £156

Cape Colony, £33. 118.

Mauritius, 4 t. 5¼ c. £76

Painters' Colours—

Rangoon, £46

Cape Colony, 142

Paraffin Wax—

Cape Colony, 2 t. 6 c. £76. 128

Spain, 6 10 £150

Potassium Bichromate—

Rouen, 15 t. ¼ c. £596

Spain, 2 2 84

Amsterdam, 13 cks. 197

Potassium Prussiate—

Rouen, 10¾ c. £34

Salicylic Acid—

Trinidad, 1 c. £30

Salt—

Victoria, 310 t. 3½ c. £375

Trinidad, 16 5 £21. 188.

Sheep Dip—

Cape Colony, 1 t. 14¾ c. £40

Natal, 17¾ 25

Soap—

Trinidad, 11 t. 17 c. £204

Sodium Bichromate—

Spain, 2 t. 17½ c. £94

Sulphur—

Demerara, 8 t. 17 c. £20

Sulphuric Acid—

Rangoon, 55 t. 16½ c. £338

Superphosphate—

Spain, 14 t. 15½ c. £57

Tallow—

Trinidad, 7 t. 8¾ c. £125

Amsterdam, 1 3 25

Stockholm, 6 131

White Lead—

Victoria, 8 t. 17 c. £155

B. Ayres, 2 12½ 28

TYNE.

Week ending December 1st.

Alkali—

Hamburg, 8 t. 5 c.

Christiania, 2 15

Rotterdam, 9 15

Reval, 44 7

Amsterdam, 34 18

Gothenburg, 20 13

Aluminous Cake—

Odense, 15 t. 14 c.

Antimony—

New York, 45 t.

Hamburg, 3

Rotterdam, 5

Arsenic—

Venice, 37 t. 18 c.

Barium—

New York, 1 t. 19 c.

Barytes—

Hamburg, 100 t.

Reval, 5 1 c.

Blanc Fixe—

Antwerp, 8 c.

Bleaching Powder—

New York, 140 t. 14 c.

Hamburg, 7 15

Antwerp, 12 14

Nykjobing, 3 3

Rotterdam, 32 13

Aarhus, 15 3

Reval, 55 9

Copenhagen, 25 4

Amsterdam, 45 9

Gothenburg, 5 1

Trondhjem, 9 18

Seville, 9 19

Carbolic Acid—

Bergen, 2 c.

Caustic Soda—

Barcelona, 65 t. 1 c.

New York, 87 1

Antwerp, 3 2

Odense, 1 9

Copenhagen, 9 3

Amsterdam, 1

Venice, 31 18

Genoa, 129 9

Seville, 18 2

Colours—

Genoa, 1 t. 11 c.

Copperas—

Alexandria, 16 t. 14 c.

Lamp Black—

Gothenburg, 1 t. 8 c.

Magnesia—

Barcelona, 8 t.

Hamburg, 1 c.

Genoa, 8

Oxalic Acid—

Reval, 1 t.

Paint—

Antwerp, 1 t. 5 c.

Genoa, 4 8

Salammoniac—

Amsterdam, 3 c.

Slag—

Rotterdam, 105 t.

Soap—

Copenhagen, 5 c.

Soda—

New York, 158 t. 5

Esbjerg, 50 2

Christiania, 30 6

Nykjobing, 15 16

Rotterdam, 28 1

Odense, 6

Aarhus, 4

Amsterdam, 30 7

PRICES CURRENT.

WEDNESDAY, DEC. 12th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—

	£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	& 10/9
„ Glacial	„	50/-	
Arsenic S.G., 2000°	„	0	14 6
Fluoric	per lb.	0	0 3¼
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0 10
„ (Cylinder), 30° Tw.	„	0	3 0
Nitric 80° Tw.	per lb.	0	0 1¼
Nitrous	„	0	0 1¼
Oxalic	nett	0	0 3¼
Phosphoric, 1750°	„	0	0 11
Picric	„	0	1 0
Sulphuric (fuming 50 %)	per ton	15	10 0
„ (monohydrate)	„	5	10 0
„ (Pyrites, 168°)	„	3	0 0
„ „ 150°	„	1	5 0
„ (free from arsenic, 145°)	„	1	6 0
Sulphurous (solution) S.G. 1025	„	3	0 0
Tannic (pure)	per lb.	0	1 0
Tartaric	„	0	0 11
Arsenic, white powdered	nett per ton	14	5 0
Alum (loose lump)	„	4	17 6
Alumina Sulphate (pure)	„	4	17 6
Aluminoferrous	„	2	7 6
Aluminium	per lb.	0	3 0
Ammonia, Anhydrous	„	0	1 4
„ 880=28° B.	per lb.	0	0 3
„ =24° B.	„	0	0 2¼
„ Carbonate	nett	0	0 3¼
„ Muriate	per ton	23	10 0
„ (sal-ammoniac) 1st & 2nd	per cwt.	39/-	& 37/-
„ Nitrate	per ton	41	0 0
„ Phosphate	per lb.	0	0 10½
„ Sulphate (grey) London	per ton	11	7 6
„ „ (grey) Hull	„	11	5 0
Aniline Oil (pure)	per lb.	0	0 5¼
Aniline Salt	„	0	0 4¼
Antimony	per ton	33	5 0
„ (tartar emetic)	per lb.	0	0 9½
„ (golden sulphide)	„	0	0 10
Barium Chloride	per ton	6	10 0
„ Carbonate (native)	„	3	5 0
„ Sulphate (native levigated)	„	45/-	to 75/-
Bleaching Powder, 35 %	nett	7	5 0
„ Liquor, 7 %	„	3	10 0
Bisulphide of Carbon	„	11	5 0
Chromium Acetate (crystal)	per lb.	0	0 6
Calcium Chloride	per ton	2	2 6
China Clay (at Runcorn) in bulk	„	17/6	to 30/-

Coal Tar Products and Dyes:—

Alizarine (artificial) 20 %	net per lb.	0	0 8
Magenta	„	0	3 9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1 1
Benzol, 90 % nominal	per gallon	0	1 1½
„ 50/90	„	0	1 1½
Carbolic Acid (crystallised 40°)	per lb.	0	0 5
„ (crude 60°)	per gallon	0	1 5
Creosote (ordinary)	„	0	0 2
„ (filtered for Lucigen light)	„	0	0 2½
Crude Naphtha 30 % @ 120° C.	„	0	0 5¼
Grease Oils, 22° Tw.	per ton	2	10 0
Pitch, f.o.b. Liverpool or Garston	„	1	13 0
Solvent Naphtha, 90 % at 160°	per gallon	0	1 2
Lucigen and "Wells" Oils	„	0	0 2½
Copper	per ton	40	12 6
„ Sulphate	„	14	15 0
„ Oxide (copper scales)	„	39	0 0
Glycerine (crude)	„	15	0 0
„ (distilled S.G. 1250°)	„	41	0 0
Iodine	nett, per oz.	0	0 9
Iron Sulphate (copperas)	per ton	1	5 0
„ Sulphide (antimony slag)	„	2	0 0
Lead (sheet) for cash	„	10	15 0
„ Litharge Flake (ex ship)	„	13	10 0
„ Acetate (white „)	„	24	15 0
„ „ brown „)	„	15	10 0
„ Carbonate (white lead) pure	„	16	0 0
„ Nitrate	„	20	0 0

Lime, Acetate (brown)	per ton	6	2 6
„ „ (grey)	„	9	17 6
Magnesium (ribbon and wire)	per oz.	0	2 3
„ Chloride (ex ship)	per ton	2	10 0
„ Carbonate	per cwt.	1	17 6
„ Hydrate	per ton	17	0 0
„ Sulphate (Epsom Salts)	per ton	3	0 0
Manganese, Sulphate	„	17	15 0
„ Borate	per cwt.	2	15 0
„ Ore, 70 %	per ton	4	5 0
Methylated Spirit, 61° O.P.	per gallon	0	1 10
Naphtha (Wood), Solvent	„	0	3 0
„ Miscible, 60° O.P.	„	0	3 4

Oils:—			
Cotton-seed	per on	19	5 0
Linseed	„	21	10 0
Petroleum, American	per gallon	0	0 5½
Stearine	per ton	26	0 0
Phosphorus (yellow)	per lb.	0	2 1
„ (red)	„	0	2 8
Potassium (metal)	per oz.	0	3 7
„ Bichromate	nett per lb.	0	0 4½
„ Carbonate, 90 % (ex ship)	per ton	16	15 0
„ Chlorate	per lb.	0	0 5½
„ Cyanide, 98 %	„	0	2 2
„ Hydrate (Caustic Potash) 80/85 %	per ton	21	10 0
„ „ (Caustic Potash) 75/80 %	„	20	0 0
„ „ (Caustic Potash) 70/75 %	„	19	10 0
„ Nitrate (refined)	per cwt.	1	2 6
„ Permanganate	per cwt.	3	2 6
„ Prussiate Yellow	per lb.	0	0 10
„ Sulphate, 90 % (ex ship)	per ton	9	15 0
„ Muriate, 80 % (do.)	„	8	7 6
Silver (metal)	per oz.	0	2 3½
„ Nitrate	„	0	2 10
Sodium (metal)	per lb.	0	3 0
„ Carb. (refined Soda-ash) 48 %	nett per ton	4	15 0
„ „ (Caustic Soda-ash) 48 %	„	4	0 0
„ „ (Carb. Soda-ash) 48 %	„	4	0 0
„ „ (Alkali) 58 %	„	4	0 0
„ „ (Soda Crystals)	„	2	5 0
„ Acetate (ex-ship)	„	14	5 0
„ Arseniate, 45 %	„	11	0 0
„ Chlorate	per lb.	0	0 7¼
„ Borate (Borax)	net, per ton	20	0 0
„ Bichromate	per lb.	0	0 3¼
„ Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	„	10	0 0
„ „ (74 % Caustic Soda)	„	9	5 0
„ „ (70 % Caustic Soda)	„	8	5 0
„ „ (60 % Caustic Soda)	„	7	5 0
„ „ (60 % Caustic Soda, cream) (f.o.b.)	„	7	2 6
„ Bicarbonate	„	5	12 6
„ Hypsulphite	„	5	10 0
„ Manganate, 30 %	„	16	0 0
„ Nitrate (95 %) ex-ship Liverpool	per cwt.	0	8 9
„ Nitrite, 98 %	per ton	29	0 0
„ Phosphate	„	15	0 0
„ Silicate (glass)	per ton	5	2 6
„ „ (liquid, 100° Tw.)	„	4	5 0
„ Stannate, 40 %	per cwt.	3	2 9
„ Sulphate (Salt-cake)	per ton	0	17 6
„ „ (Glauber's Salts)	„	1	5 0
„ Sulphide	„	8	10 0
„ Sulphite	„	5	7 6
Strontium Hydrate, 100 %	„	8	10 0
Sulphocyanide Ammonium, 95 %	per lb.	0	0 7
„ Barium, 95 %	„	0	0 5
„ Potassium	„	0	0 7½
Sulphur (Flowers)	per ton	7	5 0
„ (Roll Brimstone)	„	5	5 0
„ Brimstone: Best Quality	„	3	15 0
Superphosphate of Lime (26 %	„	2	7 6
Tallow	„	24	10 0
Tin Crystals	per lb.	0	0 6
„ English Ingots	„	66	10 0
Zinc (Spelter)	per ton	14	15 0
„ Chloride (solution, 100° Tw.)	„	5	7 6

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LATE ADVERTISEMENTS.

SULPHATE OF AMMONIA.—An East Coast Manufacturer wants to hear from Buyers.—Address, "Sulphate," *Chemical Trade Journal* Office, Manchester.

WANTED, for Manure Works, a Young Chemist; accurate analyst.—Experience, references, age, and salary required to Dublin and Wicklow Manure Co., Wicklow.

Notices.

ON JANUARY 19TH, 1895, OUR
ANNUAL SPECIAL ISSUE
Will Appear as Usual.

THIS DOUBLE NUMBER will, in addition to the ordinary features of the *Journal*, contain

ORIGINAL ARTICLES

of special interest to Chemical, Soap, Paint, and Varnish Manufacturers, Paper Makers, and users of Chemical Plant, &c.

It will also contain a number of Articles of general interest to Analysts, Metallurgists, Chemists, and the Chemical Trade, including a

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Prepaid Advertisements of Situations Vacant, Premises on Sale or To be Let, Miscellaneous Wants, and Specific Articles for Sale by Private Contract are inserted in the *Chemical Trade Journal* at the following rates:—
20 Words and under..... 2s. 6d. per insertion
Each additional 10 words 6s. 6d.

CURRENT TOPICS.

THE BACTERIA CRAZE.

THE tendency during the last few years to use bacteriology as a means of tracing the source of disease and the media by which the same is spread, is all very well in a way, but it can be overdone. It is doubtful whether by telling the public too much about bacteria and their over-abundant distribution, a mild scepticism may not be bred in the public mind, seeing that in spite of all the dangers by which we are surrounded the world still wags.

Should this ever prove to be the case, there can be but little hope for the really good work that could be accomplished by a practical application of bacteriological methods.

The establishment of the laboratory for the bacteriological examination of foods, &c., which is contemplated by the London County Council is a most commendable idea, and one which has our fullest sympathy. There is not the slightest doubt but what a vast amount of preventive work may and will be accomplished by the establishment of such a laboratory. It is against exaggerated and unduly biased representations that we would enter a mild protest. The spirit in which they are promulgated is a well meaning but an over zealous one.

It is not pleasant to learn of watercress growing in sewage, and causing the spread of typhoid fever, nor is it a satisfactory state of affairs that the so-called ice-cream of itinerant vendors should be little else than a "cold-store" for disease germs. We owe a debt to bacteriologists for elucidating these matters, and every facility should be given them for further prosecuting enquiries on parallel lines.

Again, insanitary bakehouses, in which it is possible for flour to come into contact with water which has been forced back up the drains by the sewers being flooded, ought not to exist; and further, the fact that bread is subjected to a high temperature in the process of baking, affords no excuse for using bad flour or polluted water in its preparation.

A movement is on foot to impress upon the public that the temperature attained by bread whilst being baked is not high enough to kill bacteria. This is a good thing, for not only have bacteria been found in bread, but badly baked cakes made from impure water have been found in India to cause the spread of typhoid fever.

In advocating reform in this direction, however, it is imperative that only sound and succinct arguments should be used. In a circular embodying these facts, issued by Mr. J. Lawrence-Hamilton, he quotes certain matter which is reprinted from the *Lancet*, and so in a manner is guaranteed, but he has made some additions. How much of the circular is from the *Lancet* and how much is the addition there is no means of telling. According to Mr. Lawrence-Hamilton, our bakers are hopelessly ignorant. They have to aim presumably at making a loaf all crust, because with bread as baked at present "many people are unable to eat the crust, and have

to content themselves with the indigestible and less nutritive crumb."

It is rather a stretch also to contend that the inferiority of our bread is proved "by our home practice of removing the crust, and cutting the crumb into small slices for re-baking, to be sent to table hot and labelled toast."

Honestly, how many of the thousands of people who make and eat toast do so from a sense of the inferiority of our bread, to say nothing of any apprehension of the risk of eating bacteria, with bread baked in the customary way?

Bakers have a good deal to learn, and the room for improvement is large, but care must be exercised to act upon public feeling in the right way, so as to bring about the desired changes. If the feeling becomes rife that despite all the talk about bacteria no one seems much the worse—bakers will continue to militate against public health for many a year to come.

THE NEW ALUMINIUM COMPANY.

During this week the public have been asked to subscribe £15,000. in cumulative preference shares of £10. each towards the capital of The British Aluminium Co., Limited, 5,000 shares having been reserved. The full capital is £300,000. The vendor has agreed to take the whole of his purchase consideration in the form of a deferred interest in the future profits of the company by the issue to him of 10,000 ordinary shares of £10., with the exception of £17,500. which is to be paid in cash. The vendor (E. Ristori, Esq.) also has agreed to bear expenses up to the time of allotment.

The process by which the company propose to make their aluminium is that now being used at the Société Anonyme pour l'Industrie de l'Aluminium de Neuhausen, in Switzerland and other places. It is a well known fact that with a good supply of water for power, aluminium can be made very cheaply by this process, the Neuhausen company having succeeded in producing this metal at one shilling and sevenpence per pound.

According to the report which the prospectus contains, Lord Kelvin has a good opinion of the company. There is no doubt that in Ireland the new venture will have a plentiful supply of raw material. The process has been tried before, and the company has acquired the works of the Cowles Syndicate at Milton, near Stoke-on-Trent. Provided, therefore, that they have secured ample and cheap water power for the generation of electricity, there is no *prima facie* reason why the company should not have an excellent chance of doing well on behalf of the shareholders. R. Heath, Esq., of the firm of R. Heath and Sons, the well-known iron masters, is, we notice, one of the directors. The shares are quoted at $\frac{7}{8}$ premium.

AN UNFORTUNATE INSTANCE.

The singular case of lead poisoning in the dyeing trade, which is reported in our columns this week, is a most unfortunate one, because the circumstances of the case are quite indefensible.

Such instances give a handle to those who are prone to the sensational, and they do not fail to wield the weapon which is thus placed in their hands. The admissions of the manager are such as ought never to be made, since such conditions ought never to exist. The dangers of chemical works and whitelead making are accepted evils, but it would be a bold statement to say that next to nothing is done by the employers to minimise such dangers. As a matter of fact, as a general rule the negligence lies with the employé. This time, however, the boot is on the other

leg. We can only hope that it will be a long day before we hear of another case in which a manager did not enforce the use of muzzles, and provide adequate washing and dining accommodation for the employé's when he knew that he would not let his own daughter work under the same conditions as the rest of the employé's. It will prove a short-sighted policy if this case should end in the dyeing industry being scheduled as a dangerous trade. Apparently after having paid so much attention to the producer of chemicals and poisonous colours, the Government will next have to pay closer attention to the users of the same. It is hardly fair that the one should be encompassed by rules and regulations and the other allowed a free hand.

LONDON CHAMBER OF COMMERCE.

CHEMICAL TRADES SECTIONAL COMMITTEE.

The Annual Meeting of this Committee was held at the offices of the Chamber, on Monday, 10th inst. The Deputy Chairman (Mr. Charles Umney), presided. There was a good attendance. In opening the proceedings the Chairman said: It is a matter of extreme regret to me, and I am sure it is a regret in which you share, that our respected Chairman (Mr. Wightman) is deterred, by his feeble state of health, from being present with us to-day at this, our Annual Meeting. It is my duty in his regrettable absence, as the deputy-chairman, to discharge a function which, it is needless to say, would have been much more ably performed by the chairman, and that is to indulge in a brief retrospect of the various matters which have been under the consideration of the section since our last Annual Meeting in June, 1893. From the statement which I have just made you will perceive, gentlemen, that our Annual Meeting is some months overdue, and the holding of this meeting has been expressly delayed from time to time in the hope that Mr. Wightman might have effectually recruited his health by his stay abroad, and that he might have been with us in person. I find that the section and its Committees have held nearly a dozen meetings since the date to which I referred, and while this cannot be regarded as a phenomenal number of meetings in comparison with the number held in former years, we have, at the same time, had under our consideration questions affecting the interests of the trade at large, which, I venture to say, have been of as vital a character as any which have been brought under the consideration of this section. The first subject I find that we had under discussion after our last Annual Meeting was the granting of greater facilities from the Inland Revenue in the exportation of tinctures by weight as well as by measure. As you are aware, representations were made to the Inland Revenue Board shortly after, and it says much for the more enlightened policy which is being pursued by the Government departments generally in matters relating to trade, that it was with comparatively little trouble that we secured the facilities asked for and which, I trust, have been a distinct benefit to the trade in their dealings with foreign customers. In passing, I may remark that we have a somewhat analogous subject upon the agenda paper for to-day, and that is the attitude of the County Council in reference to the possession and use of foreign weights and measures, and I have little doubt that representations will only require to be made in the proper quarter to secure the removal of a serious obstacle to trade, which we seem to be threatened with in the near future. In November of last year, you will remember that you appointed a Special Committee to tender evidence if need be, and to generally watch the interests of the trade in the then projected inquiry which Mr. Asquith was instituting into the internal arrangements, or, as he probably considered, the mal-arrangements of factories engaged in the manufacture of

POTTERY, WHITE LEAD, AND CHEMICALS.

It is unnecessary for me to give, in anything like detail (for the detail was considerable), all the correspondence which the Chamber of Commerce had on our behalf with Mr. H. S. Richmond, Her Majesty's Inspector, with reference to the proposed draft regulations for chemical works. Suffice it to say, that by the vigilance of your Committee, and no less by the courtesy of the Home Office Committee, regulations were ultimately drawn up which, while safeguarding the lives and health of the workmen, were perfectly practicable and satisfactory to the manufacturing part of the chemical trade. About this time, your

CITRIC AND TARTARIC ACIDS

Special Committee (C.T.J. 317, p. 382) again met to determine as to the best test to be adopted in order to avoid the possibility of frequent repetition of the harassing proceedings which we had occasion to take part in at Woolwich about two years ago. Your

Committee had, long prior to the time of which I am now speaking, determined upon what I may describe as a *meantime* test, and the Committee had, for many months subsequently been content to adopt a somewhat quiescent attitude, awaiting much fuller light upon the subject, in the paper which was then shortly to be read by Mr. Warrington. After hearing, however, the views which were set forth in that paper, your Committee felt that it could not come to any other conclusion than that which they had formerly arrived at, and that was to recommend the test, the particulars of which, perhaps, it is unnecessary for me to repeat, as the matter has been referred to more than once, and no doubt, with many of you, the test has long ago come into practical operation.

The Section had also under its consideration the provisions of the Food and Drugs Act, and on the motion of your Chairman (Mr. Wightman), which was seconded by myself, it was agreed that the Council of the Chamber should be asked to move for the appointment of a Royal Commission to enquire into the operation of this Act and to legislate generally upon the whole subject. It is, no doubt, within your knowledge that a few months ago a Select Committee of the House of Commons was appointed, which will resume its sittings with the reassembling of Parliament, to enquire into the operation of this Act, and it will be for us to-day to determine what action, if any, we propose to take in safeguarding our interests in connection with the deliberations of that Committee. My own views upon this subject are, I think, well known to you, and I believe, if I am not mistaken, that they have already been endorsed, by the Section, and that is that the question of drugs should be dissociated from that Act altogether and should be dealt with in a separate piece of legislation, if legislation is necessary. Towards the close of last year the Government, you will remember, introduced an Employers' Liability Bill, and after consideration as to whether the provisions of this Bill were likely to be in any way detrimental to the trade, it was discovered that in Clause I. of the Bill there was considerable uncertainty as to whether the "reasonable precautions" referred to were applicable to the employer or employee. The Bill had already passed the House of Commons when the Section detected this ambiguity, but steps were immediately taken to memorialise the House of Lords with a view to having the clause amended. My recollection is not sufficiently clear as to whether the clause was amended in the direction we suggested, but the fate of the Bill is a matter of common knowledge, and I suppose that I need only say that we are likely to be as vigilant as there is any occasion for in scrutinising the provisions of any similar Bill which may be introduced by the Government. In this same connection the Section had under consideration the burning question of "Contracting Out," which was raised by this Bill, and the Section adopted a resolution urging the Council of the Chamber to take the opportunity of urging upon Parliament the restoration to employers and workmen of contracting out of the provisions of the Act if they were so minded. The members of the Section engaged in the

MANUFACTURE OF WHITE LEAD

had occasion to hold several meetings, and to make representations, through the Chamber, to the Home Office upon certain regulations which were proposed to be issued for the benefit of employes engaged in this manufacture. It is needless for me to detail the interviews at the Home Office as well as the considerable correspondence which ensued upon this subject, and I need only say that a set of regulations were ultimately issued which, in their modified form—traceable, of course, entirely to the representations made—were perfectly satisfactory to the white lead trade of the kingdom. I would only remark in this connection that I think the Section has been singularly fortunate in its dealings with Government Departments; and while the tendency of the times seems to promise a plentiful crop of legislation from time to time as to the internal government of factories and workshops, I think that, with reasonable attitude on the part of the Government Departments concerned and an equally reasonable attitude on the part of employers, there is no reason why we should be apprehensive as to our interests being seriously jeopardised. The last item which the Section had under its consideration at a special meeting, and that some months ago, was the provisions of the Thames Conservancy Bill. In the opinion of our estimable friend, Mr. Howard, who presided over that meeting, the question being one more especially affecting the manufacturing interest, the provisions of the Bill were such as might entail considerable hardship upon the trade, especially those relating to river pollution. A resolution was, in consequence, adopted affirming the opinion that the provisions of the Bill were likely to be extremely prejudicial to the trade on the grounds set out in the 7th clause of the petition presented by the Chamber, as a whole, against the Bill. Briefly, the results of the opposition were that the pollution clauses were considerably modified, and restrictions which would have greatly affected members of the Chamber were prevented.

Such, gentlemen, is a very brief *résumé* of the subjects which have been under the consideration of the section since the last annual meeting, and while I cannot say that they are altogether as formidable in respect

of quantity as has been reported to you from this chair at previous annual meetings, I venture to think, as I said at the opening, that they have been no less important in respect of quality than the subjects which we have had under consideration in former years.

In proposing the election of the chairman for the ensuing year Mr. David Howard said it was with extreme regret that one had to contemplate the losing of the services of Mr. Wightman, but he did not think it was right to put too great pressure upon a willing helper when under doctor's orders, and he therefore thought it would be only showing a proper sympathy to relieve Mr. Wightman of the responsibilities of the chairmanship for the present, and he would venture to suggest that no one would be more competent to fill the place than Mr. Umney, who had acted as deputy. If Mr. Umney would consent to serve, their interests would be in the hands of one who was singularly well fitted to discharge the duties of the office. This was seconded by Mr. Bennett (Messrs. Lawes), and on being put to the meeting was adopted unanimously. Mr. Umney, having returned his thanks for election, Mr. Thos. Tyrer proposed that Mr. Alfred Preston should be elected deputy chairman. Mr. Preston was of opinion that some one connected with the manufacturing interest should be appointed, and he would therefore decline, but he would have pleasure in nominating Mr. Bennett, of Messrs. Lawes, for the position. On being put, Mr. Bennett's election was unanimously adopted.

FOOD AND DRUGS ACT.

The Chairman submitted the following motion for adoption:—

"That in the opinion of the Chemical Section of this Chamber, in order to make the Sale of Food and Drugs Act more efficient in its working, it is desirable that drugs should be treated in a separate section of the Act and not in the Act itself as at present associated with foods, and that a sub-committee, consisting of the chairman and Mr. H. Preston be appointed, subject to the approval of the Council, to confer with the Committee of the House of Commons."

Mr. Howard moved this as a resolution, and remarked on the fact that their goods were often judged on the report of an analyst who knew nothing about drugs and by a magistrate who knew less. It was impossible to imagine what would be done in any given circumstances, as their Pharmacopoeia was the most extraordinary in any civilised country. If a conviction could be secured by using it, it was used, if, better, by ignoring it, it was ignored accordingly. They ought to have some definite standard to go by. A clause which might be exceedingly just as applied to food might be most unjust as applied to drugs.

This resolution having been assented to, the Chairman stated that there was a feeling that there ought to be some authority to appeal to in case of doubt or dispute. He therefore submitted the following resolution for adoption:—

"That in the opinion of the Chemical Trade Section of this Chamber the Council of the Chamber should, upon the reassembling of Parliament, put itself in communication with the Select Committee of the House of Commons, having under its consideration the revision of the Sale of Food and Drugs Act with the object of urging that a Board of Reference for appeal in cases of disputed analyses should be constituted, such Board of Reference, so far as drugs are concerned, to consist of at least four persons, being the nominees of (1) Inland Revenue Authorities, Somerset House, (2) Society of Public Analysts, (3) Medical Council of Great Britain and Ireland, (4) Pharmaceutical Society of Great Britain."

Some considerable discussion ensued, but the resolution was ultimately adopted on the motion of Mr. J. C. Preston and seconded by Mr. Howard, it being amended in the direction of five persons instead of four, the substitution of the Institute of Chemistry for the Society of Public Analysts and the addition of the London Chamber of Commerce.

Bills of Lading, Government contracts, and other matters were upon the agenda paper, but no decision was arrived at in reference thereto.

After the usual vote of thanks, the meeting terminated.

THE DEPRESSION IN THE GERMAN SUGAR INDUSTRY.—The German Reichstag discussed last week an interpellation by Herren Paasche and Friedberg, National Liberals, asking the Government to amend the law relating to the taxation of sugar in order to remove the injurious effects produced upon the sugar industry in Germany by the taxation of that article in foreign countries. Herr Paasche declared that the position of the sugar industry was at present very distressing, and proceeded to explain its importance from an economic point of view, inasmuch as it gave employment to 400,000 workpeople. There was over-production in all countries, although its effects were not so serious for Germany, as she held the leadership in the world's sugar market. The chief danger lay in the distressed condition of agriculture. Agriculturists continued to grow beet because the cultivation of corn was unremunerative. Herr Paasche concluded by recommending an increase of the export bounty, his proposal being received with approval by the Right, Centre, and the National Liberals.

Official Memoranda.

(From the Board of Trade Journal.)

CUSTOMS TARIFF OF BRITISH GUIANA.

THE following is an abstract of the rates of custom leviable in British Guiana till the end of March, 1895. A duty of 8 per cent. *ad valorem* is levied on goods unenumerated:—

ARTICLES.	RATES OF DUTY.
	Dols. cts.
Candles (other than simple Tallow)	per lb. 0 05
Cement	" bbl. of 400lb. 0 25
Acetic Ether	" lb. 0 42
Sulphuric Ether	" gallon 3 00
Ethyl Iodide	" " 3 00
Oils (other than Gasoline and Crude Petroleum), with a flash point under 73° F. Abel	" " 3 00
Oils, other, including above two exceptions which must have the sanction of the Governor in Council	" " 0 25
Paint and Paint Stuffs	" 112 lbs. 0 25
Pitch	" barrel 0 50
Rosin	" " 0 50
Saltpetre	" lb. 0 01
Soap and Soap Powders	" " 0 02
Tallow and Anti-Friction Greases	" " 0 01
Turpentine, Crude	" gallon 0 50
" Spirits of	" " 0 18
Varnish (other than Spirit)	" " 0 18
Wax, Paraffin and Mineral	" lb. 0 02
Whitening, except for Manure	" " 0 00½

FREE LIST.

Animal Charcoal.	All Manures.
Cotton Seeds.	Plaster of Paris.
Lime of all kinds.	Whitening.
Plant for Manure Manufacture.	Nitrate of Soda.
	Salt.

PETROLEUM SUPPLY OF THE CAUCASUS.

According to the *Moniteur Officiel du Commerce*, the petroleum springs existing around Baku do not appear to have lost their prolific character, at all events, in the districts of Balakhani-Salrundschi, Bibi-Eybat, and Romamy, where the petroleum industry is concentrated. In 1893 the production of mineral oil was 337,051,834 pouds; of this quantity 324,763,197 pouds (13·6 per cent. more than in 1892) underwent treatment in the local refineries, the remainder having been used for purposes of fuel or lost. The increase arises chiefly from the fact that the springs, without the aid of pumps, supplied about one-third of the aforesaid total. The price of the unrefined petroleum has been affected by this abundant supply; it has varied from 2·75 copecks per poud in winter to about 0·75 copecks in summer.

In 1893 there were 38 springs and 458 wells with pumps. A set of pipes, from 75 to 150 millimetres in diameter and of a total length of 260 kilometres, connecting the wells and the works, has permitted of the refining of about 1,440,000 pouds daily. There are only 85 refineries in work, and several have had but little to do, because in Russia, as everywhere else, the larger establishments are crushing out the smaller.

The refineries have produced and exported the following quantities:—Refined petroleum, 85,633,791 pouds; lubricating oils, 6,232,740 pouds; benzine, 252,493 pouds; tar and gasoline, 437,620 pouds; and petroleum residues, 145,538,399 pouds. To these figures there should be added those for local consumption (poud = 36 lbs. avoirdupois.)

The tools and processes employed by the refineries are often incomplete and defective, and there is no longer pure water in sufficient quantity.

Sulphuric acid and caustic soda used for the treatment of petroleum are now made on the spot; four establishments supply about 9,000 tons of sulphuric acid, and three firms produce 2,700 tons of black acids which are used for refining purposes. Two factories prepare soda, one by means of the Leblanc method. As the residues have increased in price and are generally sold at a higher price than the oil, 30 per cent. of the raw product only is distilled, instead of 36·5 per cent. as formerly.

LABOUR IN FRENCH MINES.

The number of employés for all metallurgical mines in France, including salt mines, was, according to the last return: Underground, 9,277, of whom 9,206 were men, and 71 were minors; surface, 4,175, of whom 3,280 were men, 596 were women, and 299 were minors.

In the *iron mines*, employing 4,334 persons underground and 906 at the surface, the average yearly wages were 1,140 francs for the underground employés and 840 francs for those at the surface. The average daily wages were 4·50 francs for the employés underground and 3·25 for those at the surface.

In the other metallurgical mines, employing 4,022 persons underground and 2,881 at the surface, the average yearly wages were 1,005 francs for the former and 660 francs for the latter, and the average daily wages for the same classes are, respectively, 3·75 and 2·50 francs.

In *bituminous* and other mines, employing 735 persons underground and 238 at the surface, the average yearly and daily wages were, respectively, 1,090 francs and 4 francs for the former, and 715 francs and 2·80 francs for the latter.

In the *rock-salt mines*, employing 186 persons underground and 150 at the surface, the average annual wages of those working underground were 1,125 francs and 4·25 francs per diem, and of those employed at the surface, 920 francs and 3·30 francs for the same units of time.

THE PETROLEUM TRADE OF SINGAPORE.

A communication has been received from the Colonial Secretary at Singapore enclosing copy of a review of the kerosine oil trade in that colony for the third quarter of the current year:—

According to this review the stocks of kerosine on the 30th September last were as follows:—American, 45,000 cases; Russian, 5,000 cases; Russian (bulk, equal to), 99,000 cases; Langkat, 98,000 cases; total, 247,000 cases. Comparing these figures with those of the stocks on the 30th June, the following would appear to have been the consumption and export for the quarter:—American, 87,000 cases; Russian, 3,000 cases; Russian (bulk, equal to), 38,000 cases; Langkat, 36,000 cases, giving a total of 164,000 cases.

The final quotations for September varied between 1·32½ dols. and 1·75 dols. per case.

EXPORTS AND CONSUMPTION OF MARGARINE.

In 1893 the exports of Mouriez margarine from France amounted to 7,456,647 kilos.; it has varied very little since 1887.

In Scandinavia the exports in 1893 exceeded 2,000,000 kilos.; in Belgium they were 3,437,325 kilos.; in Netherlands they were not less than 74,000,000 kilos. England received from foreign countries in the same year 65,000,000 kilos. of margarine. The Netherlands was accountable for 60,000,000 kilos., and France for scarcely 2,000,000 kilos.

THE STATE OF THE CHEMICAL TRADES.

CHEMICAL trade in the Wear and Tyne districts is reported as depressed. The white lead and cement trades are slack. Matters are better, however, in comparison with the paper makers. In the Burnley and Accrington districts calico printers are fairly busy. In the neighbourhood of Manchester there is virtually no change in the dyeing and finishing trades. There is an improvement in the chemical trade at Northwich. At Widnes and St. Helens great depression is reported, while trade at the glass works and copper works is also far from flourishing. There is a slight improvement in the salt trade at Winsford, but the prevailing depression in the chemical trade seriously affects the salt industry. Seed crushing at Hull is satisfactory, and all the mills are at work save one or two stopped for repairs, and are, moreover, fairly busy. The paint and colour trades are moderate, short time being worked by one important firm. In Derbyshire trade with dyers, bleachers, and paper makers is good. In the Wolverhampton district oil, colour, and varnish makers are fairly busy, and there is an improvement in the glass trade at Dudley and Stourbridge. Chemical works about Cardiff are busier. Copper smelting works, however, are quiet, and the patent fuel trade is dull.

HE WANTED TO KNOW.—The following little bit is too good to be lost. The *Financial News* has been consulted by a correspondent, and, to use their own words, there is a delightful *naïveté* about the following letter which they have received:—"I should be glad if you would kindly inform me in your columns if there are any countries still without an extradition treaty with Great Britain. As I am secretary to a company, this may be a matter of great importance to me." This is about as satirical as the Board School youth, reported last week as having stated that Jabez Balfour was the Chancellor of the Exchequer.

Legal Intelligence.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before the Master of the Rolls and Lords Justices Lopes and Rigby.)

REDDAWAY AND OTHERS V. BANHAM AND OTHERS.

This was an application by the defendants for judgment or a new trial in an action tried before Mr. Justice Collins and a special jury at Manchester. The action was for an injunction to restrain the defendants from continuing to use the word "camel" in such a manner as to deceive purchasers into the belief that they were purchasing goods (camel-hair belting) of the plaintiffs' manufacture, and from passing off their goods as and for goods of the plaintiffs' manufacture. It appeared that several years ago the Lancashire Belt Company made a patent belting for machinery, and sold it as the Lancashire belting. Shortly afterwards (in 1879) the plaintiffs made a camel-hair belting for machinery, and called it "Reddaway's camel-hair belting," and largely advertised and sold it as such, and stamped a camel upon the belting. The defendant Banham had been a workman in the plaintiffs' employment, and after he left that employment the defendants made a belting of similar material, and advertised and sold it as "Banham's camel-hair belting," and on the belting itself they stamped the words "camel-hair belting."

Their Lordships having deferred their decision (*C.T.J.* 389, p. 272) they delivered judgment on Tuesday.

The Master of the Rolls said the action was for an injunction and an injunction alone. The plaintiffs' case was put in this way:—They had for many years made camel-hair belting, and had sold it, their principal market being in India, for some 14 years, and the goods were of such a high character that they had obtained a name in the market for a very high class of camel-hair belting, and they sold it as "Reddaway's camel-hair belting." But the market had dropped the word "Reddaway," and anyone wanting Reddaway's camel-hair belting would ask for "camel-hair belting," and any one asking for it in that way would expect to get Reddaway's camel-hair belting. The plaintiffs said that that was their position, and that no one else had a right to come into that market and to take their trade away in the mode in which the defendants had done or endeavoured to do in this case. In his opinion the law upon the point was well-settled. It was true that a man might obtain such a right as the plaintiffs claimed apart from any question of pattern or trade mark. A man might obtain a right under certain circumstances to prevent another person from coming into the market and taking away his trade by using his name, and it signified not whether it was done without any intent to take away his trade, and in such a case an injunction could be obtained. That was the general principle, and was settled beyond all doubt. But there was an exception to that general principle, and that exception was that when one person asked for an injunction to prevent another from doing something, an injunction could not be granted to prevent a man from telling the simple truth. That was so held in "*Turton v. Turton*." In that case the plaintiff had brought himself within the general principle above stated. But the defendant's name was the same as the plaintiff's, and the only thing proved against the defendant was that he had used his own name. It was true that by so doing he might have obtained some of the plaintiffs' trade, but this Court, following the decision in "*Burgess v. Burgess*," held that it was an exception to the general principle if the person complained of only used his own true name. If he had called himself Turton when that was not his name that would have been untrue. But if he told the truth and nothing else, though people dealing in the market were deceived, he could not be enjoined from calling himself by his own name. That was a decision with regard to a man's name. But the principle laid down clearly showed that an injunction could not be granted to restrain a man from telling the exact truth. Then there was the case of "*Reddaway v. Bentham Hemp-Spinning Company*," which was decided in the other division of this Court, and in that case, at the suit of the same plaintiffs as in the present case, it was held that an injunction might be granted. The learned Judges, however, did not intend to do anything contrary to the decisions in "*Burgess v. Burgess*" and "*Turton v. Turton*." The same belting as in this case was the subject-matter of complaint, but in that case the evidence was to the effect that this camel-hair belting was said not to be made of camel-hair. It was said that very little camel-hair was in the belting, so that to call it camel-hair belting was not an accurate description of the article, and was therefore a fancy name. If a person called that which he manufactured by a fancy name he was not describing the article he made. Therefore, such a person would not come within the exception to the general rule. It was well known that if a person had obtained in the market the use of a fancy name, apart from any

question of pattern or trade mark, no one else could use that name. In the present case Mr. Gully, on behalf of the plaintiffs, admitted that this material was substantially made of camel-hair, and therefore camel hair was a correct description of it. He did not make that admission at the trial, and Mr. Justice Collins assumed that the evidence as to the material was the same as in the former case of "*Reddaway v. Bentham Hemp-Spinning Company*." That admission was made here because the plaintiffs desired to have it decided that everyone was shut out from calling it camel-hair belting, though that was an exact description of the material. In his opinion, the rule might be stated thus—a man might call the goods he was selling by the name by which anyone wanting the goods would in ordinary course call them in any market in which he wanted to buy or sell them, although in so doing he called them by the name by which the person who complained had called his goods in a market, until in that market the name alone was taken to mean his goods alone. For instance, a man invented shovels made wholly of iron, and had no pattern or trade mark, and sold them as "iron shovels" until he got a name in the market, and anyone asking for iron shovels would be taken as asking for his iron shovels. Then, if another person came into that market and sold iron shovels, he had a right to do so if they were iron shovels, because it was a name by which anyone dealing in them would call them. Many other similar illustrations could be given. The person selling the iron shovels could not be enjoined from selling them as iron shovels; and, further, if his name happened to be the same as the plaintiffs, and he sold them under his own name, the plaintiffs could not complain. If that were true, Mr. Gully's admission, if made at the trial, should have caused a non-suit. The only evidence against the defendants was that they had made and sold camel-hair belting. That was a true description of it. No one could go into the market and ask for camel-hair belting without naming it. The first three questions, therefore, put to the jury were asked upon an incorrect view of the facts. If the name had been a fancy name, the questions would have been right. But the learned Judge ought not to have asked the jury any questions at all. He ought to have non-suited the plaintiffs. Then as regards the fourth question. It was not said that the defendants had done anything fraudulent. But the learned Judge was requested to ask the jury whether the defendants had endeavoured to get their goods passed off as the goods of the plaintiffs. For himself, he doubted whether that would have been of any use unless there was fraud. But assuming it would be of use, was there any evidence of it? The only evidence was that the defendants made their belting as nearly as possible in the same way as the plaintiffs' belting, and called it camel-hair belting. Those were the only two facts. The defendants had a right to imitate the plaintiffs' belting, and if they were trying to beat them out of the market they had done nothing wrong. In calling the goods camel-hair belting they only told the truth. Therefore it came to this, that it was said that the defendants had a wrong intention—to pass off their goods as the plaintiffs'. Even assuming that to be so, the law took no notice of intention in a man's mind unless it was carried into effect by a wrongful act. Therefore, as the only default suggested was the using the name, intent was immaterial, and there was nothing to support the fourth question. Under the circumstances, the learned Judge ought to have entered judgment for the defendants, and the appeal must therefore be allowed.

Lords Justices Lopes and Rigby delivered judgments to the same effect.

MANCHESTER ASSIZES.

(Before Mr. Justice Kennedy and a Special Jury.)

SCOTT AND WHITWORTH V. READ HOLLIDAY AND SONS, LIMITED.

The plaintiffs in this case, who are manufacturers carrying on business at Manchester, claimed damages against the defendants, a Huddersfield firm of dyers, for breach of contract through the defective dyeing of yarns.—Mr. Smyly, Q.C., and Mr. C. A. Russell represented the plaintiffs; Mr. Shee, Q.C., and Mr. Byrne were for the defendants.—Mr. Scott, one of the plaintiffs, said that the representative of the defendants called upon him on several occasions with the object of inducing him to use the "Tennyson scarlet dye" of the defendants' firm. At various times orders were given to the defendants. It was distinctly understood, before any transactions took place, that the colour would stand sun and exposure. The representative of the defendants stated to him that he might safely rely on the dye holding fast. A large quantity of yarn was dyed, but it did not resist the Indian sun. Goods had consequently been returned to the plaintiffs by their customers. The damaged materials were valued at £266.—The defence was that no guarantee was ever given that the dye was a fast dye.—Mr. Shee pointed out that there was not a word in the correspondence which took place before the orders were given in reference to a guarantee. The price charged by the defendants for the "Tennyson scarlet dye" was the price not of a fast but of a fugitive colour.—The jury found for the plaintiffs, damages £266.

Reports of Companies.

THE CAPE COPPER CO., LIMITED

The ordinary general meeting of this company was held last week at the Cannon-street Hotel, London. Mr. E. A. Pontifer, who presided, said the result of their operations for the past year, although satisfactory, would have been much more so had it not been for the continuous fall in copper. The profit for the year, inclusive of the amount for interest carried to the debit of the Tilt Cove Company's suspense account, amounted to £81,496, as compared with £81,208, in the previous year, but had the price of copper been the same in the two years they would have made an additional profit of £26,344. The cost of raising the ore had been reduced from 1s. 10½d. per unit in 1892-93 to 1s. 8¼d. per unit in the period under review. In other ways there had been savings, the result being a reduction of the expenses by £20,000, in the year. It was satisfactory to find that their reserve of ore had diminished to a much smaller extent during the past year than in the previous one. In 1892-93 their reserves had been trenced upon by 14,500 tons, but in 1893-94 they had been reduced by only 9,000 tons, and there was still standing in the Ookeip mine, on a safe calculation, 48,500 tons. In addition there was, of course, a large amount of new ground being constantly discovered. After referring to the steadiness of their dividends as compared with those paid by other large copper companies, he concluded by moving the adoption of the report. Mr. J. Galsworthy seconded the motion, which was adopted.

SANTA ELENA NITRATE CO., LIMITED.

The report of the directors of this company to June 30th, states that the accounts are prepared on the basis of 11¼d. exchange, thereby showing an apparent loss on exchange of £1,577. Since the date of the accounts this loss will have been reduced by nearly £900, exchange having advanced to about 14d. The directors propose, in future, to start an exchange suspense account in order that the year's trading may not be affected by any arbitrary rate of exchange ruling on the date of the balance-sheet. The directors regret that they are unable, in view of the result of the year's working, to pay any dividend. This result has been brought about by causes beyond the control of the board, such as scarcity of labour, fall in exchange, and the additional cost entailed by the construction of new roads, and other exceptional circumstances. Since the closing of the accounts the company's produce has been sold on advantageous terms. The profit and loss account for the year shows a credit balance of £39.

DIVIDEND.

THE LAGUNAS NITRATE CO., LIMITED.

The Directors of the Lagunas Nitrate Company, Limited, have declared an interim dividend for the six months to 31st inst. at the rate of 15 per cent. per annum, or 7s. 6d. per share, payable to all shareholders on the register on the 19th inst.

PHOSPHORIC ACID IN THE MANUFACTURE OF SUPERPHOSPHATES.

SPEAKING of the development during the past few years of High-Grade-Supers, Mr. Wyatt says these supers are made to contain about 45% of P_2O_5 in a "water" and "citrate" soluble form. The method employed in so doing is both scientific and rational since it consists in supplanting the oil of vitriol usually used as a solvent for the raw phosphate, with phosphoric acid itself.

In the manufacture of superphosphates as now carried out, the desired solubility, either in water or in citrate of ammonia, is attained at the cost of doubling the bulk of the raw material by the addition of sulphuric acid, which practically serves no other purpose and has no other value than that of a solvent. If such raw material, therefore, contain 60% of tricalcic phosphate, the "super" can only contain 30%, and this, from the agricultural consumers' standpoint, is certainly an anomaly, and, apart from any question of solubility, must remain so for two reasons:

(1) A ton of 60% phosphate of lime, finely ground, but insoluble in water or citrate of ammonia, can be purchased at some central point for, say, £2.

(2) A ton of superphosphate, containing only 30% phosphate of lime, cannot be purchased at the same spot for less than £3.

In the one case, freight is paid upon only 40% of waste material, whereas in the other, it is paid upon 70% of practically valueless matter.

That a legitimate profit should attach to the manipulation of an inert, and its transformation into an active body, is beyond question, but I cannot see why such enormous and unreasonable benefit should

be derived from the trade in fertilizers by the railroad companies. If it were for no other object, therefore, than the reduction of such detrimental freight charges to a minimum limit, I think it is well worth while to consider briefly the practicability of superseding the old method of manufacture.

The reactions involved in the process of superphosphate mixing have served to demonstrate that the cheapest and best known method of making liquid phosphoric acid from calcic phosphates, is by driving it from its combination with lime by means of the stronger oil of vitriol, and by utilising many low-grade phosphates which now, for lack of a sufficiently cheap freight, have practically no market value.

PREPARATION OF THE LIQUID PHOSPHORIC ACID.

The only essential conditions to the manufacture are: (a) That the material used shall contain a minimum of carbonate of lime, in order that no unnecessary excess of the sulphuric acid be required for its decomposition. (b) That it shall contain as small a percentage as possible of any combination of iron and alumina, since both of these bodies contribute to the formation of a gelatinous mass that seriously interferes with the course of the operations.

If the exact chemical composition of the raw phosphate is known, the quantity of sulphuric acid necessary to insure the desired dissociation of all the phosphoric acid from the various bases present is very readily calculated.

The operations are conducted in large tanks made of suitable wood, lined with lead and provided with agitators. The required quantity of sulphuric acid, say, for example, 2,000 pounds of 50° B strength (106° Tw.), is mixed in each tank with sufficient water to reduce it to a density of 14° B (22° Tw.). The agitators being in active motion, a sufficient quantity, say, 2,000 pounds of finely ground phosphate, is slowly added to each tank, and stirring is continued for five hours, open steam being occasionally blown in by an injector through the side of the tank in order to keep the mixture quite hot.

When the five hours have expired, the cream from each tank is run off into filters made from large wooden vessels lined with lead and provided with false bottoms, where the hydrated sulphate of lime separates from the solution of phosphoric acid. The latter passes through the filter as a bright straw-coloured fluid, of a gravity which, commencing at about 12° B (18° Tw.), gradually becomes reduced by careful washing to 1° B.

The exercise of ordinary care and precautions prevents all cracks from being formed on the surface of the gypsum contained in the filters, and the lixiviation of the mass is stopped directly the gravity of the filtrate reaches 1° B. The hydrated sulphate of lime is now raked together into the centre of the filters to drain, and is finally carried to the dump, while the last runnings from the filters, which are too weak for economical concentration, are used to dilute the strong sulphuric acid required for subsequent operations.

The filtered phosphoric acid liquor is pumped into an elevated tank, and thence it runs by gravitation to a series of leaden evaporators of any convenient form of construction, heated either by direct fire from the top or from the bottom, or by waste steam from boilers.

During the progress of the evaporation the acid solution practically deposits all its sulphate of lime, and it finally attains a density of about 44° B (91° Tw.). At this strength it should contain about 45% of phosphoric anhydride, with only a mere trace of lime, magnesia, and iron and alumina, and is now ready for use in place of sulphuric acid in the manufacture of soluble and assimilable phosphates.

USE IN MANUFACTURE OF SUPERS.

Its mixture with the raw phosphate can be effected in the usual superphosphate mixers, on the same system of calculation and by the same method of manipulation as are now used with oil of vitriol, and it very soon sets into a porous mass, which, although not very dry, is sufficiently stiff to be easily dug out. This mass is cut up into pieces of reasonable size and dried by hot air, in any form of shed that will facilitate effective and rapid work. Directly it is sufficiently dry for the market, it is put through a disintegrator and filled into bags.

If you will compare this material with the present staple superphosphate, which barely contains the equivalent of 30% of bone phosphate of lime made soluble, you will find that, in addition to its lower manufacturing cost, it contains the equivalent of 99%, or more than three times as much bone phosphate of lime, made equally as soluble and available. It could, therefore, be distributed at an economy of two-thirds of the freight now actually paid for useless material, and you will agree with me that this is a consideration of the highest consequence, seeing that the world must have phosphate, and that the raw material, while it is of the best quality known, is confined to an area somewhat remote from the large mass of consumers.

THE PRIESKA NITRATES.—Dr. P. H. Harn reports that nitrate of potash is abundant at Prieska, South Africa. The area he examined was 40 miles by 10 miles. Mr. Guy Ashwell, chemist, also says that the supply is practically unlimited.

Correspondence.

* * We do not hold ourselves responsible for the opinions expressed by our correspondents.

THE COMPARATIVE WORKING OF COKE OVENS.

(To the Editor of the Chemical Trade Journal.)

SIR,—In your issue of the 8th inst. I notice a comparison of the working of the Semet-Solvay, Carvé-Hunessner, and Otto-Hoffman coke ovens. As considerable interest seems to be evinced at present in the relative methods and results of working the different systems of retort coke ovens before the public, it should be stated that the coal used in the only installation of the Semet-Solvay ovens at work in Westphalia only contains 21 to 22% of volatile matter as compared with 29% in the coal charged into the two other types mentioned, viz., the Carvé-Hunessner and the Otto-Hoffman, a considerable quantity of anthracite being mixed with the local fuel, and in the Semet-Solvay ovens, and thus reducing the volatile portion to the amount stated. It is obviously unfair, therefore, to compare the results in the way Mr. Farrell has done. As an instance of the results obtained by the Semet-Solvay ovens when working on a rich coal I give the following, obtained at the works of the Brymbo Steel Company, Limited, North Wales, licensees of Messrs. Solvay & Co., and with which company I am connected. At present our production of tar is 5%, and of sulphate of ammonia 1.27% of the fuel treated, and these figures will, I anticipate, be increased. Also the production of coke per unit of time and the yield of coke per ton of fuel charged are far above the results obtained with any other system, the production being nearly double that of other retort ovens.—Yours, &c.

JOHN H. DARBY.

December 14, 1894.

[The increased yield of coke is a point which has never been doubted, and is therefore beside the question. We think it is only fair, however, to point out that Mr. Farrell states that the comparison was made "working on similar grades of Westphalian coal."—ED. C. T. J.]

LEAD POISONING IN THE DYEING TRADE.

MR. SYDNEY SMELT, deputy coroner for Manchester, held an inquiry, last week, relative to the death of Emily Wood, 19, lately living in Irlam-street, Newton Heath, who had died from the effects of lead poisoning. The girl was in the service of Messrs. Kerr and Hoegger, dyers, Grimshaw-lane. Early in November she became ill, and was attended by Dr. A. Walker. He found well marked symptoms of lead poisoning. Dr. Walker said he had seen a number of cases of lead poisoning in the district of Newton Heath during the last few years. He gave evidence three years ago in the case of two girls working for the same firm who had died from lead poisoning.—A girl named Carmichael, employed in the same room with the deceased, said that she had never used a respirator, and up to a week ago had never seen one in the place. The work was what is known as "noddling" yarn dyed in yellow and orange colours. Witness herself had been ill on several occasions from lead poisoning. Prior to a week ago the employes used to take their meals in the "noddling" room. There was a place to wash their hands, but no towel was provided.—Dr. Reynolds, who had made an examination of the body of the deceased, said the cause of death was lead poisoning.—The manager of the works, whilst admitting that at a previous inquiry he had promised to see that washing accommodation and respirators were provided, said he had never seen more than two or three girls wearing the respirators up to quite recently. He only knew of three girls out of thirty-six who had never been away ill from lead poisoning, and he had never stopped the girls from taking their meals in the "noddling" room until last week. The occupation was a dangerous one, and he would not let his own daughter work at the place unless she wore a respirator.—At the conclusion of the evidence the Coroner suggested to the jury that they should recommend that this particular trade should be declared a special dangerous occupation under the Factory and Workshops Act.—Mr. Smelt commented strongly on the conduct of the firm in not taking every precaution to prevent such cases in accordance with a promise made on their behalf in the course of a similar inquiry in 1891. Nothing he could say could add to the feeling of indignation that everybody must have on this subject. The girls had simply been allowed to commit suicide in order that foreigners might be supplied with yellow-dyed goods.—After deliberating in private for some time the jury returned a verdict to the effect that the deceased had died from lead poisoning, caused by the firm neglecting to carry out the promises made by them three years ago.—Mr. Rogers,

H.M. Inspector of Factories, and Dr. Niven, Medical Officer of Health for the city, were present at the inquiry. Mr. Pearson watched the proceedings for the firm.

Trade Notes.

GOLD RECOVERY.—The Afrikander Gold Mining Company's return of gold won for the month of November was 361 ounces from 1,150 tons milled, and 241 ounces from 1,100 tons of tailings treated by cyanide, the total being 602 ounces. The manager reports that native labour is scarce.

THE NEW POSTCARD.—The Postmaster-General states that early next year the Post Office will issue a new stout postcard of the "Court" or "Correspondence" size. The new card will be issued in addition to the present cards, and will be sold at the same price as that charged for the stout inland cards already in use.

CLOSING OF MATCH FACTORIES IN ITALY.—It is reported from Grossemare, Italy, that a large match factory there has been closed in consequence of the new tax on matches. The hands thrown out of employment are clamouring to be provided with work by the municipality. The match-making industry is a Government monopoly in Italy.

EXPLOSION AT A GAS WORKS.—Last week an explosion occurred in the Dalmarnock Gas Works, Glasgow, and seven labourers were injured, some very severely. The men were engaged in the purifying-house at the time, and several of them say they felt as if they had been struck by a flash of lightning. The men more seriously injured were removed to the hospital. The explosion was caused by a workman striking a flintstone with his shovel.

RIVER POLLUTION PROSECUTION.—At the Middleton Police Court, the Mayor, Aldermen, and Burgesses of the Borough of Middleton were summoned recently for polluting the river Lees by (1) allowing liquid sewage to flow therein, and (2) forcing the liquid fluid to flow in. Mr. Wilson represented the Mersey and Irwell Joint Rivers Committee, who proceeded in the matter, and the Corporation were represented by Mr. Entwistle. No evidence was taken, the Corporation pleading guilty. A fine of 20s. and costs was imposed, and an order made for the sewage works to be completed within six months.

MESSRS. T. PARKER, LIMITED.—This firm has just completed the erection of extensive electrical works at Wednesfield-road, Wolverhampton, where the manufacture of all kinds of electrical apparatus and appliances will be carried on. The works, which were formally opened by the Mayoress of Wolverhampton on December 10th, consist of erecting, fitting, pattern, and machine shops and a foundry. The erecting shop has a length of 150 feet, and the foundry has a length of 120 feet and a width of 40 feet. Upwards of £40,000, it is stated, has been expended in their construction and equipment.

THE PROPOSED BACTERIOLOGICAL LABORATORY.—An important proposal is before the London County Council for the establishment of a municipal laboratory where bacterial examinations may be conducted of cases of suspected cholera and diphtheria. Originally the intention was to found an institution similar to one that already exists in New York, to be maintained by the Council and managed by officials of that body. This, however, was thought to be too serious an undertaking for a beginning, and the scheme now suggested is that a temporary arrangement should be made with a competent bacteriologist who will undertake the work in his own laboratory. The health officers of London will be asked to assist by the collection of material, and facilities will be afforded them of conducting examinations on their own account.

THE PRODUCTION OF PHOSPHATES.—In regard to the total amount of phosphate produced by European countries, France heads the list a long way in advance of any of the other countries. It has not been possible to ascertain the exact figures except for Belgium, Germany, and Norway, but the following estimate is based upon a very careful calculation made from reliable data: France, 5,750,000 tons; Belgium, 2,200,000 tons; England, 1,800,000 tons; Germany, 850,000 tons; Spain, 600,000 tons; Norway, 125,000 tons. Russia is omitted, as no reliable data have been received. The total production from South Carolina slightly exceeds 7,250,000 tons, and Florida has already mined over 1,000,000 tons. Various West Indian islands, notably Curacao, Aruba, and Sombrero, have supplied large quantities of phosphate, and total shipments to date have exceeded 1,000,000 tons, nearly the whole of which have been shipped to Europe. Canada has produced about 250,000 tons, just double the output from Norway, but in like manner the output has fallen to a mere cipher. It is worthy of notice that the United Kingdom has imported phosphates from every source of supply in Europe and elsewhere where phosphate has been produced. In the last ten years over 2,500,000 tons of phosphate have been landed on her shores, but large quantities in the shape of super-phosphates have been reshipped to various countries.

THE LAUTARO NITRATE COMPANY, LTD.—The directors of this company have declared an interim dividend of 7s. 6d. per share, free of income tax, for the current year, payable on January 2, 1895. The transfer books will be closed from December 20 to January 2, both days inclusive.

LOGWOOD via THE SHIP CANAL.—On Monday last, the first consignment of logwood received this season arrived in Manchester by the barque Eulalie, from Jamaica. The weight of the consignment is 600 tons, and is the first of many similar cargoes that will arrive here during the next few months. The Eulalie is a wooden barque of 528 tons register.

ANOTHER FATAL LAMP EXPLOSION.—On Monday an inquiry was held relative to the death of Frederick James Sabey, son of a townsman living in Whitley-street, Rochdale-road, Manchester. About eight o'clock on Friday, the 14th inst., the deceased and an elder brother named William went downstairs to make the fire. The latter lighted a paraffin oil lamp and placed it on the table. It suddenly exploded and set the table and Frederick's nightdress on fire. Mrs. Sabey, on hearing the screams of the children, ran downstairs and extinguished the flames, but not before the little boy had been badly burnt. He was at once attended to by a doctor, and subsequently taken to the Royal Infirmary, where he died on Saturday.—The jury returned a verdict of accidental death.

UNEMPLOYED OBJECT TO FOURPENCE AN HOUR.—A large sum of money was voted by the London City Corporation to supplement a much larger amount given by a benevolent gentleman to provide winter work for the West Ham unemployed. This gift was conditional on the price per hour being limited to fourpence, in order that more poor people might be benefited. It now appears that a deputation, professing to represent the unemployed, have waited on the West Ham authorities and declined to work on such terms. The latter sum of money has therefore been sent back to the donor, and it seems probable that the Corporation cheque will be in like manner returned. It would be interesting to know if Mr. Keir Hardie intends to include these "gentlemen" in the one million unemployed he is trying to discover for Lord Rosebery's edification.

DEEPENING OF THE IRWELL.—The Rivers Committee of the Manchester Corporation, after consulting with a deputation from the Salford Town Council, requested the respective engineers of the two corporations to report on the subject of the deepening of the river Irwell. Messrs. de Courcy Meade and Joseph Corbett have accordingly considered the matter, and presented the following report:—"We are of opinion that the river should be dredged for an average width of sixty feet to a uniform depth of eight feet below ordinary water level, for a length extending from Hunt's Bank to the city boundary at Broughton, near Sherbourne-street. The cost of this work—based upon prices recently paid for similar work in the neighbourhood—we estimate at £8,500. The proposed section will obviate interference with foundations, therefore nothing is allowed in our estimate for underpinning."

WATERCRESS AND TYPHOID FEVER.—The medical officer of health for Lambeth has made a startling report to the Sanitary and Public Health Committee of the parish, the facts of which, he said, were of widespread importance in view of the large consumption of watercress in the metropolis. While investigating the source of infection in several outbreaks of typhoid the doctor's suspicion fell upon watercress as the infecting agent, and through the courtesy of the tradesmen who sold this edible he was able to trace it to its place of growth on the outskirts of South London. A general survey of the large sewage farm in which the watercress beds were situated could not fail to impress the ordinary observer of the magnitude of the demands of the breakfast tables of London for watercress. Through all the sectional beds, however, a gentle current of water was maintained, and analysis demonstrated that this water had all the chemical characteristics of liquid sewage; and further, a microscopical examination revealed the presence of innumerable colonies of micrococci and bacteria.

THE NEW FERMENT.—A Japanese *savant*, Jokichi Takamine, who has studied at Glasgow and Tokio Universities, has discovered a novel method of preparing diastase and some other substances, of which we recently received specimens. He has been cultivating *Eurotium Oryzae*, a mycelial plant of the *Aspergillus* family, on wheat-bran, and has found that at an early stage of its growth it bears upon its roots minute crystals of diastase, while the unripe spores contain a very powerful ferment. By washing the bran in percolators and crystallizing the solution, he claims to be able to obtain diastase of considerable purity as a commercial product. Diastase is, of course, a familiar enough substance, though our chemical knowledge respecting it is at present far from complete. Its property, however, of transforming starch into sugars is made use of every day by brewers and distillers. The ferment is a very remarkable substance. It is said to be three times as powerful as yeast—that is, it will continue to produce fermentation in a sugar solution till there is 20 per cent. of alcohol present, whereas the action of ordinary yeast stops when the percentage

of alcohol reaches seven. This one fungus, therefore, appears to produce in itself the converting agents required in two of the most important processes in the manufacture of beer and spirits. Besides this, the wheat-bran, after two or three cultivations have been grown upon it, is said to form a good food for cattle, containing some 20 per cent. of protein, or flesh-forming substance.

Market Reports.

TAR AND AMMONIA PRODUCTS.

Tar products generally are quiet. Benzols are easier, if anything, at 1s. for 90's and 1s. 1d. for 50/90's. Carbolic acids are quiet, and crude is inclined to dulness, 60% crude being quoted 1s. 5½d. Crystals flat at 5d. for 40%. Naphtha is steady. Crude is unaltered in price, but solvent is firm at 1s. 2½d., forward having been done at 1s. 2d. Creosote and anthracene are without change. Pitch continues firm, though prices are easier: prompt, f.o.b. East Coast, 38s., and forward 34s.

Sulphate of ammonia is weak. Prices are quoted as low as £11. The weight of the supply seems to be felt, so that there is no immediate prospect of any improvement. Prices for Beckton and all other ports range from £11. to £11. 2s. 6d. Sales at Leith are reported at £11., but this lacks confirmation.

LIVERPOOL MINERAL MARKET.

There is little alteration in our market to report this week; the steadiness previously mentioned has continued, and quotations are practically unaltered. Manganese: there has been more business doing in all qualities, and prices are firm, but unaltered, viz.: 11d. to 1s. 1d. for prime qualities; ground, £6. to £12. 10s. per ton. Manganiferous ore is still being done at the last figures, viz.: 15s. to 17s. 6d., c.i.f., in cargoes. Bauxite, Irish Hill Brand, is in increased demand, and prices are firm at 20s. for first quality, 16s. for seconds, and 12s. for thirds, with the probability of an advance, owing to the increased demand for this ore in the manufacture of aluminium metal, which undoubtedly is the metal of the future. Chrome ore: arrivals are slow, and they have been taken up at high figures, whilst large contracts for forward delivery have also been made at top prices: stocks are *nil*, and prices are consequently firm at 65s. to 70s. for 40% and 110s. to 115s. for 50% ore. French chalk: arrivals are small, and they have chiefly gone direct into consumption; prices are unaltered at 75s. to 110s. for "Angel White" and "Gold Medal" Brands. Barytes: carbonate is very scarce, whilst the demand is strong: prices are firm at 95s. for best lump and 70s. to 80s. for nut size; ground, £6. to £8. per ton. Sulphate, both lump and ground, is scarce at 25s. to 32s. 6d. for lump and 50s. to 90s. for ground. Wolfram and scheelite of high grades are in good demand at last figures. Ferro tungsten is unaltered at 1s. 9d. per lb. Strontia sulphate (Celestine) continues unchanged. Plumbago is unaltered at £5. to £6. for foundry's purposes, and £8. to £10. per ton for better qualities. Bog ore is steady at 22s. to 23s. per ton. Ochre, "J.C." 60s. to 65s.; other brands according to quality; Devonshire and Welsh, 50s. to £5. Rottenstone: smalls at £7. 10s.; best lump, £10. to £12. Magnesite is easy at about 35s. for large quantities. Fullers earth: ground, a fair business is doing at 80s. to 100s.; lump at 60s. to 70s. Emery stone is rather quiet. Antimony ore easy.

REPORT ON MANURE MATERIAL.

During the week the market has been very quiet, and any alteration in values has been in favour of buyers. The quotation for 75/80% Florida rock remains 7¼d. per unit, c.i.f. to United Kingdom, 1895 steamer shipment, but something less would have to be taken to induce business. It is reported that further mines have closed down, but the output seems likely, notwithstanding, to be sufficient to meet the demand for some time to come. South Carolina River rock continues to offer at 6¼d. per unit, and Peace River rock at 6½d. per unit, c.i.f. to United Kingdom. Algerian phosphates offer freely, and the nearest value of 60/65% is 6¼d. per unit. There is nothing reported in cargoes of River Plate bones, the value being nominally about £4. 8s. 9d. per ton, delivered good United Kingdom ports. There is less disposition to go on selling East Indian bone meal for shipment at £4. 10s. per ton, but closing value cannot be put at over that price. Sales of fine Crushed Kurrachee bones have been made at £4. 12s. 6d. per ton, ex quay Liverpool, and there are further sellers at the price. Common grinding bones are worth £4. 5s., ex quay Liverpool, and parcels suitable for charring £4. 7s. 6d. to £4. 10s. per ton. Nitrate of soda is firmer in the forward position, the shipments

in October and November being mostly consigned direct to ports of discharge, and those still available being well held. October-November shipments are worth about 8s. 10½d. per cwt., and those earlier and later not quite so much. On spot the market is quiet, but steady at 8s. 9d. for ordinary quality and 8s. 10½d. per cwt. for fine.

Other nitrogenous material is rather neglected, and the fall in the value of sulphate ammonia has affected prices prejudicially.

THE METAL MARKETS.

LONDON, WEDNESDAY.—Pig iron, dull: Scotch warrants closed at 41s. 8½d., Middlesbrough 34s. 10½d. cash, and hematite 42s. 9½d. Copper, steady: Chili bars, G. O. B.'s and G. M. B.'s, closed at 44½s. to 44½s. 10s. cash, and 44½s. 12s. 6d. to 44½s. 17s. 6d. three months. Tin, quiet: Straits closed at 62s. to 62s. 10s. cash, and 61s. 17s. 6d. to 62s. 7s. 6d. three months; Australian, 62s. 7s. 6d.; English ingots, 65s. to 65s. 10s. Lead, quiet: Spanish, 9s. 11s. 3d. to 9s. 12s. 6d.; English, 9s. 12s. 6d. to 9s. 15s. Silesian spelter, ordinary: 14s. 10s. to 14s. 11s. 3d. Nickel, 1s. 4d. Antimony, 32s. 10s. to 33s. Quicksilver: first hands, 6s. 12s. 6d.; second hands, 6s. 11s. Copper shares, steady: Cape, 1½s. to 1½s.; Copiapo, 1½s. to 1½s.; Libiola, 3½s. to 3½s.; Mason and Barry, 1½s. to 1½s.; Rio Tinto, 15½s. to 15½s.; Tharsis, 4½s. to 4½s.

GLASGOW, WEDNESDAY.—Market easy, with small business. Scotch done at 41s. 7½d. and 41s. 8½d. cash, also at 41s. 9½d. and 41s. 10½d. one month; closing with buyers at 41s. 8½d. cash, sellers ask 41s. 9d. Cleveland done at 35s. sixteen days, closing with buyers at 34s. 10½d. cash, sellers ask 34s. 11½d. Cumberland hematite done at 42s. 9d. cash; closing with buyers at 42s. 9½d. cash, sellers ask 42s. 10½d. Middlesbrough hematite closes with buyers at 42s. cash, sellers ask 42s. 1d.

WOLVERHAMPTON, WEDNESDAY.—Business limited in view of Christmas stoppages. Tone of market, however, hopeful. Prices showed no further retrogression. Galvanised sheets in moderate request; values a shade firmer. Corrugated doubles, 9s. 12s. 6d. to 9s. 15s., delivered Liverpool; black doubles, 6s. 10s. Bars unchanged. Iron scrap sold at 2s. to 2s. 5s., and steel scrap 50s. to 60s. Local best pig iron 52s., medium 40s., and cinder 37s. Derbyshire qualities 39s., and Northampton 38s. Steel in good call. Bridge plates 5s. 10s., girders 5s. 5s.

LIVERPOOL OIL AND COLOUR MARKET.

WEDNESDAY.

OILS.—Palm oil is steady, but rather quiet, prices being inclined to favour buyers. Very little is doing in Lagos. Saltpond has been done at 19s. 12s. 6d. per ton transit. Olive is steady, and prices have advanced somewhat already, notably for Syrian. Linseed is again easier, current value being 20s. 9d. to 21s. 6d. per cwt. for Liverpool makes in export casks. Cottonseed is now being firmly held for 18s. 3d. to 19s. per cwt. Liverpool refined, and American 19s. 3d. per cwt. Castor oil moves rather slowly, but the price continues firm, good seconds Calcutta being quoted 2¼d. First pressure French 2½d. to 2½d. per lb. Tallow is very steady, though rather dull. North 24s. to 25s., South 25s. to 26s. Resin keeps very firm, with common at 4s. per cwt., medium 4s. 9d. to 6s. 9d., fine 7s. 3d. to 9s. 3d. per cwt. Spirits of turpentine are slightly cheaper, American being in good demand at 20s. 9d., and Mexican unaltered at 20s. per cwt. Petroleum is steady, American 4¼d. to 5½d., and Russian refined 3¾d. to 4d. per gallon.

COLOURS are steady, without alteration in prices. Ochres: Oxfordshire, common, 10s., medium, 12s., best, 15s., Derbyshire, common, 40s.; medium, 50s., best, 60s.; Welsh, best, 92s., seconds, 50s., and common, 18s.; Irish, Devonshire, 40s. to 45s.; French, J.C., 60s. to 65s.; M.C., 65s. to 67s. 6d. Umber: Turkish quiet; Devonshire, 50s. to 55s. White lead, 16s. Red lead unchanged. Venetian red, 6s. to 10s. Cobalt: Prepared oxide, 9s. 9d.; black, 9s.; blue, 6s. Zaffres: No. 1, 3s. 6d.; No. 2, 2s. 6d. Oxide of iron: Common, 7s.; medium, 10s.; finest, 20s. Zinc oxide, 22s. 10s. to 25s.

TYNE CHEMICAL REPORT.

TUESDAY.

Chemicals are dull, and neither in price or position of the trade is there any alteration of moment. Sulphur continues scarce at 4s. per ton. Other products unaltered. Business likely to be quiet until after the turn of the year. Prices are as follows:—

Bleaching Powder, softs, 7s. 5s. per ton, nett; hards, 7s. 10s. per ton, nett; caustic soda, 76/77%, 10s. per ton, nett; do., 70%, 8s. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, 4s. per ton, nett. Soda ash, 48%, 3s. 15s. per ton, nett; do., 52%, 4s. 2s. 6d.

per ton, nett; do., 56%, 4s. 10s. per ton, nett; alkali, 36%, 2s. 15s. per ton, nett; white alkali, 48%, 4s. 10s. per ton, nett; do., 50%, 4s. 15s. per ton, nett; do., 52%, 5s. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, 5s. per ton, nett; do., 1 cwt. kegs, 5s. 10s. per ton, nett; silicate of soda, 75° Tw., 2s. 17s. 6d. per ton, nett; do., 100° Tw., 3s. 12s. 6d. per ton, nett; do., 140° Tw., 4s. per ton, nett; soda crystals, casks, 1s. 17s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, 1s. 17s. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, 3s. per ton, nett; pure white sulphate of alumina, 4s. 2s. 6d. per ton, nett; blanc fixe, 7s. 10s. per ton, nett; chloride of barium, 7s. 10s. per ton, nett; carbonate of alumina, 28s. 15s. per ton, nett; aluminate of soda, 33s. 15s. per ton, nett; in 5 ton lots, 28s. 10s. per ton, nett.

SALT.—South Durham salt firm at 9s. 6d. per ton, f.o.b. Tees. **COALS.**—Trade is dull again. To-day's quotations are: Best Northumbrian steam, 9s. to 9s. 3d. per ton; second qualities do., 8s. 6d. to 8s. 9d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton; gas coals, 7s. 6d. to 8s. per ton; coke steady, 13s. to 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, TUESDAY.

There is not the slightest speck of improvement or recovery to be discerned in any of the sections of this quarter of the market; on the contrary there is even an increased flatness, which, however, may be attributable to the usual putting off what will put off till after the holidays, customary at this season of the year even in times of brisk trade. A rise in some of the low run down ordinary chemicals is looked for early in the year, as the natural effect of the suspended production, but no large or permanent advance is looked for by anybody.

Mineral oils and solid paraffins continue in full delivery, at the low contract prices given below; and the candlemaking sections of the industry (chief consumers of solid paraffins) are at the maximum production on prices, however, which are rather unsatisfactory.

Sulphate of ammonia declines steadily, and there are no makers now who are not ready to snap at 11s. 5s. prompt, Leith, if to be got, but sulphate buyers seem to have become extinct. Some sellers are ready to take less.

Chief prices current are:—Soda crystals, 36s. nett, Tyne; soda ash, 48/52°, 3s. 17s. 6d. to 4s. 5s. nett, Tyne; white alkali, 48/52°, 4s. 10s. to 5s. 5s. nett, Tyne; alum in lump, 5s. 10s. nett, Glasgow; caustic soda, white, 74° 9s. 5s., 70/72° 8s. 5s., 60/62° 7s. 5s., and cream 60/62° 7s. 2s. 6d., all nett, Liverpool; bleaching powder, 7s. 5s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, 20s., and boracic acid, 30s. nett, Glasgow; bicarbonate of soda, 5-cwt. casks 6s. 10s., and 1 cwt. casks 6s. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5½d. less 5%, Liverpool; nitrate of soda, 9s.; sulphate of ammonia, 11s. 2s. 6d. to 11s. 5s., prompt, f.o.b., Leith; sal-ammoniac, first and second white, 3s. 39. and 37. nett, any port; sulphate of copper, 15s. 10s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft, 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined, 2½d.; paraffin spirit (naphtha), 7d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¼d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° 4s.; 885° 4s. 10s. to 5s., and 890/895° 5s. to 5s. 10s. Week's imports of sugar at Greenock were 4,199 bags beet, unrefined, and 50 bags beet, refined.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—Nothing exciting much interest in this trade is or has been passing lately; still upon the whole, considering that the close of the year is so near, business is not worse than previous years at the same time. Both linseed and cottonseed continue to arrive in large quantities; of the former there have been imports equalling 6,492 quarters from various Black Sea ports during the week; of the latter the arrivals equal 7,636 tons from Alexandria. There is also an import of rapeseed of 4,807 quarters during the week. Linseed oil is steady but inactive, business being done for spot delivery at 19s. 4½d., and month 19s. 3d.; January-April 19s. 4½d., and May-August 18s. 9d. to 19s. Last four months offer at 18s. 9d. Casks 17s. 6d. and ordinary barrels 25s. per ton extra; boiled and refined ditto from 1s. to 2s. per ton extra. The export for the week has been 1,206 cwt. Refined cotton oil dull, and about 5s. per ton lower on the spot, at 16s. 3d. naked. Dec-April offer at 16s. 6d. and May-Aug. at 17s. 3d. Crude 14s. 9d. naked spot and 15s. to 14s. 10½d. Dec-April. Export for the week 7,740 cwt. Rapeseed oil is 5s. per ton cheaper. "Vegaline," a new neutral vegetable fat, perfectly white and sweet, 30s. per cwt. Cod oil remains unchanged and very quiet. Sod oil 15s. 10s. to 19s. per

ton. Turpentine 21s. 6d. per cwt. Soft soap 14s. 6d. per cwt. Town melted tallow £25. per ton. Boiled drying oil £12. per ton. Engine and cylinder oils from 1s. to 2s. per gallon.

CAKES.—Linseed cakes firm. 95% pure, £6. 12s. 6d. Russians, £6. 5s. to £6. 12s. 6d. Oilcakes, £5. 2s. 6d. to £5. 12s. 6d. per ton. Cotton cakes firm: new seed cakes, £3. 12s. 6d.; old seed, £3. 10s. Rape Cakes: Feeding, £4 7s. 6d.; East Indian, £3. 15s.; Black Sea, £2. 15s. per ton.

PAINTS.—Makers remain very quiet, continuing their hands upon short time, though many have good orders booked for execution in the New Year. Prices are: White lead, reduced by 5s. per ton. Oxide of zinc and red lead unchanged. Dry colours are quoted: Venetian red, from £3. 15s.; Red oxide, from £7. to £18. per ton. Blue black, £4; Yellow ochre from £3. 15s. Venetian red, black, yellow ochre, blue, and oxide paints from £12. per ton. Paint remover from 25s. to 30s. per cwt. Black varnish, £5. 10s. per ton, barrels free. Oak varnish from 5s. 6d. per gallon.

New Companies.

Blue Cera Soap Company, Limited.—CAPITAL, £5,000., in shares of £1. each. This Company has been formed to acquire the business of soap manufacturer now carried on at Southall, Middlesex.

The British Aluminium Company, Limited.—CAPITAL, £300,000. in 20,000 7% cumulative preference shares of £10. each, and 10,000 ordinary shares of £10. each. This Company has been formed to work certain patents for the manufacture of aluminium by electricity.

Association of British Manufacturers of Portland Cement, Limited.—The members of this Company are liable for £5. each in the event of liquidation. The objects of the Association are to discourage and prevent the adulteration of Portland Cement, in particular by the admixture of raw Kentish Ragstone or any other material after calcination. The business of the Association will be conducted by a Committee.

W. and T. Avery, Limited.—CAPITAL, £200,000., in shares of £1. each. This Company has been formed to carry on the business of weighing machine manufacturers, and to acquire the Company of the same name now in voluntary liquidation. The subscribers to the memorandum of Association are:—W. B. Avery, Edgbaston, manufacturer; W. Chamberlain, Harborne Hall, Birmingham; W. Williams, Edgbaston, manufacturer; H. H. Avery, Edgbaston, manufacturer; A. Lloyd, Birmingham, clerk; A. J. Williams, Birmingham, chartered accountant; H. C. Pinsent, Birmingham, solicitor; and R. A. Pinsent, Birmingham, solicitor.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.
Improvements in Sewage Precipitation Tanks. J. S. Pickering. 23,415 December 3.
Manufacture of Acetone. R. Jürgensen and A. Bauschlicher. 23,438. December 3.
Smoke Preventing Appliance for Furnaces. R. Evans and T. W. Jones. 23,495. December 3.
Improvements in the Cyanide Process for the Recovery of Gold. W. Fairweather. 23,518. December 4.
Extraction of Gold and Silver. J. Pfleger. 23,557. December 4.
Artificial Fuel. F. J. Koopmann. 23,599. December 4.
Improvements in Working Chemical Furnaces. G. T. Beilby. 23,592. December 5.
Purification and Use of Wood Gas for Illuminating. A. Greg. 23,631. December 5.
Electro-Deposition of Zinc on Iron. Cowper-Coles Galvanising Syndicate, Limited, and S. O. Cowper-Coles. 23,669. December 5.
Apparatus for Making Compressed Electrolytic Copper, etc. A. M. Clark. 23,680. December 5.
Extracting Gold and Silver. J. Pfleger. 23,729. December 6.
Smoke Consumer. W. McGlashan and J. P. Rawlings. 23,766. December 7.
Apparatus for Treating Sewage, etc. Bacillite Sewage Purifying Syndicate, Limited, and A. P. Hope. 23,847. December 7.
Means for Conveying Sludge. Bacillite Sewage Purifying Syndicate, Limited, and A. P. Hope. 23,848. December 7.
Producing Magnetic Oxide of Iron on Wrought or Cast Iron. P. H. Bertrand. 23,855. December 7.
Improvements in the Construction of Electrodes. A. B. Woakes. 23,697. December 6.

Gazette Notices.

PARTNERSHIPS DISSOLVED.

E. GRIFFITHS AND A. DARCY, tar distillers and general chemical dealers, White Post Lane, Hackney Wick, N.E., under the style of Griffiths and Co.
W. THOMAS AND CO., oil merchants, Juxon-street, Lambeth, S.W.
J. HUDSON AND J. J. D. MAIN, artificial manure manufacturers, Frog Island, Leicester, trading as the Anglo-American Nitrogen Co.
T. G. AND F. L. MARSH, dynamite and general explosives agents and contractors, Dudley.

BANKRUPTCY ACTS, 1883 and 1890.

Receiving Orders.

H. GOOD AND SONS, oil and colour merchants, Phillip-street, London.
THE COMBINED SOAP COMPANY, Hawkins-street, Hulme, Manchester, and the Egerton Chemical and Colour Manufacturing Co., Hargreaves-street, Hulme, Manchester.

Adjudication.

HARDY, ROBERT HENRY, Littleborough, manager of glue works.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 8th.

Acetate of Lime—
U. States, 478 pkgs. Lister & Biggs
Acetic Acid—
Belgium, 11 pkgs. Sawyer, Sons, & Co.
Holland, 100 A. & M. Zimmermann
Phillips & Graves
Acetone—
Holland, 24 pkgs. Beresford & Co.
Germany, 1 T. H. Lee
Holland, 4 G. Rabn & Co.
U. States, 5 Beresford & Co.
Alkali—
France, 220 c. Arnati & Harrison
Belgium, 200 "
Ammonia—
Holland, 2 pkgs. Little & Johnston
Ammonium Chloride—
Holland, 41 pkgs. H. Lorenz
Aniline—
Holland, 5 pkgs. L. C. & D. Rly. Co.
Antimony Ore—
Portugal, 50 t. J. Bamber
Arsenic—
Germany, 35 pkgs. Burgoyne & Co.
Asbestos—
Germany, 666 L. & I. D. Jt. Co.
Italy, 200 Bot. and Nich's Wf. Co., Ltd.
Canada, 400 W. Byford

Canada, 50 t. H. Lambert
Germany, 13 "
Barytes—
Belgium, 54 cks. W. Harrison & Co.
Germany, 95 G. Farmiloe & Sons
Belgium, 40 J. Kitchen, Ltd.
Belgium, 4 J. L. Lyon & Co.
" 41 N. J. Fenner & Co.
" 68 A. Zumbek & Co.
" 24 O'Hara, Matthews, & Co.
Binitro Toluol—
Holland, 6 pkgs. J. Owen
Camphor—
Germany, 3 cks. T. H. Lee
Caoutchouc—
E. Indies, 100 c. L. & I. D. Jt. Co.
" 490 Soundy & Sons
France, 7 H. Johnson & Sons
Portugal, 11 Kleiwort, Sons, & Co.
Zanzibar, 21 Hale & Son
" 47 Anderson, Weber, & Smith
Madagascar, 32 Lewis & Peat
Zanzibar, 30 L. & I. D. Jt. Co.
" 14 Arbuthnot, Latham, & Co.
France, 20 Mory & Co.
Castor Oil—
Belgium, 50 brls. Fuerst Brs. & Co.
E. Indies, 183 cks. Ross & Deering
" 194 Cayzer, Irvine, & Co.
Italy, 30 cs. Lucas & Spencer's Wf. Co.
Belgium, 60 brls. Burrell & Co.

Caustic Potash—
Germany, 200 c. Petri Brs.
Holland, 49 J. M. Steel & Co.
Chemicals (otherwise undescribed)
Belgium, 26 pkgs. T. Palmer
Germany, 73 L. & I. D. Jt. Co.
" 23 T. H. Lee
" 30 Craven & Co.
" 75 A. & M. Zimmermann
Phillips & Graves
Belgium, 17 O. Scholzig
Holland, 2 L. C. & D. Rly. Co.
U. States, 5 S. Lambert & Co.
Chloride of Sulphur—
Holland, 20 pkgs. Typke & King
Citric Acid—
France, 2 pkgs. B. & F. Wf. Co.
Cream of Tartar—
France, 1 pkge. F. C. Devon & Co.
Italy, 10 Thames S. T. & L. Co., Ltd.
Spain, 5 B. & F. Wf. Co.
Holland, 10 W. C. Bacon & Co.
" 46 Kirkpatrick & Co.
Dextrine—
Holland, 10 pkgs. H. Lorenz
France, 30 J. W. Drysdale & Co.
Germany, 100 Hernu, Peron, & Co.
Dyestuffs—
Argols
Italy, 520 pkgs. Thames S. T. & L. Co., Ltd.
Cape, 15 pkgs. L. & I. D. Jt. Co.

Cochineal
Canaries, 15 pkgs. Marshall & French
" 20 Kuhner, Henderson, & Co.
Extracts
Belgium, 300 pkgs. T. H. Lee
" 34 Leach & Co.
France, 37 B. & F. Wf. Co.
Belgium, 24 L. J. Levinstein & Sons
Gambier
E. Indies, 979 pkgs. E. Boustead & Co.
" 3,327 R. & J. Henderson
" 243 Sollas & Sons
" 4,934 L. & I. D. Jt. Co.
Indigo
Holland, 6 cts. T. H. Lee
E. Indies, 58 Arbuthnot, Latham, & Co.
Myrabolams
E. Indies, 1,366 pkgs. A. Hagan
" 14 Hale & Sons
" 3,000 P. & O. Co.
Saffron
Spain, 2 pkgs. B. & N. Wf. Co.
" 2 Middleton S.S. Wf. Co.
" 2 Richardson, Spence
Shumac
Italy, 750 pkgs. Beresford & Co.
" 250 J. E. Scott
" 450 R. McCracken & Co.
" 300 W. Shelcott
" 1,000 Bevington & Sons
" 2,265 J. Kitchen, Ltd.
" 100 Union L. Co.
" 100 H. Johnson & Sons
" 100 W. Barter & Co.
" 150 Sollas & Sons
" 100 F. Roberts

Turmeric E. Indies, 53 pkgs. L. & I. D. Jt. Co. " 1,350 Dalton & Young " 404 H. A. Litchfield & Co. " 250 Anderson, Weber, & Smith	Potassium Carbonate — Belgium, 14 c. J. A. Reid Potassium Chlorate — France, 10 pkgs. W. H. Cole & Co. Potassium Cyanide — Germany, 3 pkgs. Page, Son, & Co. Potassium Hydrate — France, 8 pkgs. Spies Bros. & Co. Pumice Stone — Italy, 2 t. B. & N. Wvs. Co. Germany, 1 E. Fellingham Italy, 3 Stobbs, Wilson & Co. " 2 A. G. Soutter & Co. " 19 O'Hara & Hoar " 5 Stobbs, Wilson & Co.	Denmark, 480 G. F. Green & Co. Germany, 1,016 E. J. & W. Goldsmith Canada, 3,986 Holland, 1,195 Norway, 4,810 " 625 Germany, 406 Sweden, 51 " 400 Zinc Oxide — Holland, 125 pkgs. Davidson, Unwin & Co. Germany, 5 cks. Beresford & Co. U. States, 200 brls. M. Ashby, Ld. Holland, 175 " 500 cks. Soundy & Sons " 103 J. Matton Germany, 47 brls. M. Ashby, Ld.	Potassium Carbonate — Hamburg, 15 cks. Pyrites — Huelva, 2,610 t. Mathieson & Co. Rosin — New York, 5 brls. Salicylic Acid — Hamburg, 6 cs. Salt — Hamburg, 500 bgs. 5 cs. Saltpetre — Hamburg, 80 kgs. 9 brls. 6 cks. Silver Sulphide — Colon, 20 cs. Graham, Rowe & Co.
Dyestuffs (otherwise undescribed) France, 30 pkgs. Prop. Hay's Wf.	Rosin — U. States, 3,100 brls. Moore & Hole " 250 F. & S. Chiesman " 500 Produce Brokers' Co. France, 2 F. Arenberg	Soap — Philadelphia, 21 cs. 1 cri. Cole Bros. " 12 J. J. G. Tuckwood " 7 J. Ismay & Sons	Starch — Antwerp, 118 cs. J. T. Fletcher & Co.
Farina — Germany, 633 pkgs. Ohlenschlager Bros. " 100 Dunlop Bros. & Co. Holland, 40 J. Barber & Co. Germany, 50 J. Knill & Co. " 100 C. Tennant, Sons & Co.	Saltpetre — Germany, 40 cks. J. Hall & Sons " 107 P. Hecker & Co. " 65 C. Wimbale & Co. " 500 bgs. Anglo-Cont. Guano Wks. E. Indies, 484 A. Hunter & Co. " 453 Co-op. Lighterage Assn.	Acetate of Lime — Rouen, 154 bgs. Alkali — Hamburg, 10 cs.	Starch — Rotterdam, 40 Stearine — Antwerp, 13 bgs. Rotterdam, 10 cs. Sulphur — Boston, 1 brl. Davis, Turner & Co.
Glucose — Germany, 600 pkgs. 600 c. Ohlenschlager Bros. " 100 100 c. M. D. Co. U. States, 100 600 Deering & Robottom " 500 500 Fellows, " 100 100 Prop. Sun Wf. France, 460 460 L. Norman & Co., Ltd. U. States, 500 500 Ohlenschlager Bros. " 500 500 Hoare, Wilson, & Co. " 10 60 L. & I. D. Jt. Co. " 1,276 1,276 L. Sutro & Co. " 200 1,200 Union L. Co. " 1,373 4,636 R. G. Hall & Co. " 50 286 Page, Son, & East " 20 120 Fellows, " 600 600 Humphrey & Co. " 990 990 Barrett, Tagant, & Co. " 80 480 J. Kitchin, Ltd. " 370 1,600 L. Norman & Co., Ltd.	Silica — Germany, 1,100 A. Haacke & Co. Soda — Belgium, 22 c. Union L. Co. Holland, 80 J. Owen Soda Ash — Germany, 2,000 c. R. Waters Holland, 2,000 Sodium Acetate — France, 15 pkgs. H. Lorenz Sodium Carbonate — Holland, 20 c. Beresford & Co.	Barytes — Antwerp, 23 cks. 250 bgs. Rotterdam, 22 Camphor — Hamburg, 2 cs. 1 ck. Chemicals (otherwise undes.)— Boston, 105 bxs. J. Cassels Cod Oil — Hamburg, 50 brls. Colours — Hamburg, 1 ck. 34 cs. Rotterdam, 2 cks. Cottonseed Oil — New York, 165 brls. Cream of Tartar — Barcelona, 5 cks. 5 pps. 5 hds. Tarragona, 5 5 bts.	Tallow — Philadelphia, 175 tcs. Tartar — Bordeaux, 14 cks. 8 bgs. Tartaric Acid — Bordeaux, 8 cks. Turpentine — Tampico, 400 bxs. Ultramarine — Rotterdam, 25 cs. Verdigris — Bordeaux, 1 ck.
Infusorial Earth — Germany, 45 T. H. Lee " 35 W. Byford	Starch — Germany, 84 pkgs. Philipps & Graves Belgium, 52 T. H. Lee U. States, 250 Oswego Co. Holland, 575 Little & Johnston Belgium, 361 F. Clayton & Co. " 50 Leach & Co. " 597 Sawyer, Sons & Co. " 40 F. V. Smythe & Co. Holland, 65 Philipps & Graves	Dyestuffs — Argols Bordeaux, 32 cks. Oporto, 33 Cochineal Gd. Canary, 4 bgs. G. S. Bruce " 4 Sperling & Williams Extract Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs. Wood Pulp — Rotterdam, 134 brls. Oporto, 100 Wood Pulp Co. Montreal, 6,778 A. Rice & Co. Christiania, 3,227 Skien, 2,118
Iron Chloride — Holland, 6 pkgs. J. Barber & Co.	Sulphur — Italy, 15 t. C. J. Capes & Co. " 4 Pillow, Jones & Co. " 50 W. C. Bacon & Co. " 10 Grimwade, Ridley & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Magnesia — Germany, 18 pkgs. A. E. Piggott	Talc — France, 170 G. G. Blackwell, Sons & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Magnesium Sulphate — Germany, 74 pkgs. City Coml. Wf., Ld.	Tar — Sweden, 200 brls. Flageollet & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Manganese — Japan, 100 t. J. Swire & Sons Germany, 111 Magee, Taylor & Co.	Tartaric Acid — Holland, 36 pkgs. Kirkpatrick & Co. " 16 B. & F. Wf. Co. France, 12 F. C. Devon & Co. Holland, 9	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Manure — France, 45 t. J. Burnett & Sons Germany, 20 W. G. Blagden E. Indies, 50 A. Hunter & Co. Sydney, 184 Aden, 2 Culverwell, Brooks & Co.	Turpentine — Sava'nah, 4,362 brls. Produce Brokers Co., Ld. " 7,500 H. Funck & Co. N. Russia, 53 F. & S. Chiesman & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Mica — Adelaide, 1,250 F. Braby & Co.	Ultramarine — Holland, 5 cs. Hernu, Peron & Co. Germany, 33 cks. Steinhoff, Sons & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Ochre — France, 30 cks. Ross & Deering " 50 brls. W. Harrison & Co. Holland, 12 pkgs. Philipps & Graves	Varnish — U. States, 3 pkgs. Brown & Elmslie Sweden, 12 Flageollet & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Paraffin Wax — U. States, 3,088 brls. Anglo-American Oil Co. " 200 H. Hill & Sons " 101 Produce Brokers' Co.	White Lead — Holland, 137 cks. T. & W. Farmiloe " 2 E. Bilby " 15 Petri Bros Germany, 12 Randall Bros. " 33 Perkins & Homer Belgium, 10 J. L. Lyon & Co. " 20 brls. Perkins & Homer Holland, 38 Spies Bros & Co. " 170 Burrell & Co. Germany, 90 pkgs. H. Lambert " 46 M. Ashby, Ld.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Phosphate Rock — Belgium, 220 t. Anglo-Cont. Guano Wks.	Wood Pulp — Sweden, 646 pkgs. C. S. Lovell " 49 Henderson, Craig & Co. " 203 W. G. Taylor & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Pitch — Germany, 250 cks. Linck, Moeller & Co.	Wood Pulp — Sweden, 646 pkgs. C. S. Lovell " 49 Henderson, Craig & Co. " 203 W. G. Taylor & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Plumbago — Ceylon, 123 brls. L. & I. D. Jt. Co. Germany, 10 bgs. Brit. Anti-fouling Paint Co. Belgium, 8 Ceylon, 358 brls. J. Thredder, Son, & Co.	Wood Pulp — Sweden, 646 pkgs. C. S. Lovell " 49 Henderson, Craig & Co. " 203 W. G. Taylor & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Potash — Canada, 243 c. Charles & Fox	Wood Pulp — Sweden, 646 pkgs. C. S. Lovell " 49 Henderson, Craig & Co. " 203 W. G. Taylor & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.
Potassium Bichromate — Holland, 15 pkgs. G. Rahn & Co.	Wood Pulp — Sweden, 646 pkgs. C. S. Lovell " 49 Henderson, Craig & Co. " 203 W. G. Taylor & Co.	Waste Salt — Trieste, 674 brls. Oak Extract Co., Ld. Fiume, 159 De Clermont & Donner	Waste Salt — Hamburg, 821 bgs.

LIVERPOOL.

Week ending December 6th.

MANCHESTER.

Week ending December 8th.

Potash —	
Antwerp,	4 brls.
Potassium Chlorate —	
Antwerp,	8 cks.
Potassium Sulphate —	
Rotterdam,	100 cks.
Sal ammoniac —	
Rotterdam,	1 ck.
Sodium Acetate —	
Antwerp,	4 brls.
Starch —	
Antwerp,	90 cs.
Rotterdam,	130
Sulphuric Acid —	
Rotterdam,	4 cks.
Tartar —	
Bordeaux,	26 cks.
Tartaric Acid —	
Rotterdam,	44 cks. 9 cs.
Tin Perchloride —	
Antwerp,	2 cks.
Ultramarine —	
Rotterdam,	2 cks. 2 cs.
White Lead —	
Antwerp,	6 cks.
Rotterdam,	9
Wood Pulp —	
Halmstadt,	2,352 bls.
Gefle,	12,266
Gothenburg,	952
Norrköping,	576
Zinc Oxide —	
Rotterdam,	125 brls.

HULL.

Week ending December 8th.

Acetic Acid —	
Rotterdam,	20 blns. Hutchinson & Son
Aniline —	
Hamburg,	7 cs. Bailey & Leatham
Arsenic —	
Hamburg,	20 kgs. Wilson, Sons, & Co., Ltd.
Asbestos —	
Reval,	95 bgs.
Barytes —	
Antwerp,	400 bgs. 18 cks. Bailey & Leatham
Rotterdam,	102 Hutchinson & Son
Camphor —	
Hamburg,	170 cs. Wilson, Sons, & Co., Ltd.
Castor Oil —	
Hamburg,	2 cs. Wilson, Sons, & Co., Ltd.
Chemicals (otherwise undescribed)	
Stettin,	2 cks. 15 brls. Wilson, Sons, & Co., Ltd.
Stockholm,	7
Dunkirk,	24 dms.
Antwerp,	59 pkgs.
Hamburg,	4 cks.
Cod Oil —	
Aalesund,	70 brls. Wilson, Sons, & Co., Ltd.
Hamburg,	19 cks.
Colours —	
Antwerp,	7 pkgs.
Rotterdam,	80 2 cks. W. & C. L. Ringrose
Antwerp,	15 brls. Wilson, Sons, & Co., Ltd.
Rotterdam,	47 pkg. 4 cs. 12 cks. Hutchinson & Son
"	Wilson, Sons, & Co., Ltd.

Dyestuffs —	
Alizarine	
Rotterdam,	63 pkgs. 21 cks. W. & C. L. Ringrose
"	13 brls. Hutchinson & Son
Fustic	
Hamburg,	15 cs. Wilson, Sons, & Co., Ltd.
Madder	
Rotterdam,	5 cks. Wilson, Sons, & Co., Ltd.
Farina —	
Stettin,	600 bgs. Wilson, Sons, & Co., Ltd.
"	250
Ghent,	140 cs.
Harlingen,	40 bgs.
Glucose —	
Stettin,	600 bgs.
Kaolin —	
Rotterdam,	241 bgs. Hutchinson & Son
Ochre —	
Rouen,	12 cks.
Phosphate —	
Ghent,	182 t.
Pitch —	
Antwerp,	1 ck. Bailey & Leatham
Rosin —	
Bordeaux,	6 cks.
Saltpetre —	
Rotterdam,	135 bgs. Wilson, Sons, & Co., Ltd.
Hamburg,	10 "
Starch —	
Rotterdam,	40 cs. Hutchinson & Son
Bremen,	1,578 Veltmann & Co.
Stearine —	
Rotterdam,	25 bgs. Wilson, Sons, & Co., Ltd.
Antwerp,	100 "
Sulphate of Lime —	
Rotterdam,	215 bgs. Hutchinson & Son
Talc —	
Bordeaux,	50 bgs. Rawson & Robinson
Tartaric Acid —	
Rotterdam,	2 brls. 4 cks. Hutchinson & Son
Turpentine —	
Bordeaux,	10 brls. Rawson & Robinson
Ultramarine —	
Rotterdam,	4 cs. Hutchinson & Son
Waste Salt —	
Hamburg,	203 bgs. Wilson, Sons, & Co., Ltd.
"	709 40 t.
White Lead —	
Antwerp,	58 cks. Bailey & Leatham
Rotterdam,	82 W. & C. L. Ringrose
"	82 Hutchinson & Son
Wolfram —	
Hamburg,	10 cs. Wilson, Sons, & Co., Ltd.
Wood Pulp —	
Bordeaux,	1 bl.
Christiania,	168 Wilson, Sons, & Co., Ltd.
Helsingfors,	20 J. Good & Sons
"	19 Furley & Co.
"	111
Zinc Oxide —	
Rotterdam,	25 cks. W. & C. L. Ringrose
"	25 Hutchinson & Son

GLASGOW.

Week ending December 13th.

Aniline —	
Rotterdam,	9 cs. 2 cks. J. Rankine & Son
Arachide Oil —	
Rotterdam,	3 cks. J. Rankine & Son
Barium Chloride —	
Rotterdam,	4 cks. J. Rankine & Son
Barytes —	
Rotterdam,	40 cks. J. Rankine & Son
Hamburg,	28
Borax —	
Hamburg,	10 cks.
Castor Oil —	
Calcutta,	497 cs.
Chemicals (otherwise undescribed)	
Hamburg,	5 cks. 3 cs.
Colours —	
Rotterdam,	2 cks. 1 cs. J. Rankine & Son
Hamburg,	2
Rotterdam,	19 pkgs.
Cream of Tartar —	
Barcelona,	10 pps
Dextrine —	
Stettin,	286 bgs.
Dyestuffs —	
Alizarine	
Rotterdam,	76 cks. J. Rankine & Son
"	50 pkgs.
Extracts	
Nantes,	120 cks.
Indigo	
Rotterdam,	4 cs. J. Rankine & Son
Potash —	
Rotterdam,	42 cks. J. Rankine & Son
Pyrites —	
Huelva,	2,212 t. Tharsis Co.
Rosin —	
New York,	1,000 brls.
Saltpetre —	
Hamburg,	60 cks.
Stearine —	
Rotterdam,	22 cks.
Tartar —	
Bordeaux,	12 cks.
Varnish —	
New York,	1 hf-brl.
White Lead —	
Rotterdam,	53 cks. J. Rankine & Son
Wood Pulp —	
Hamburg,	49
Rotterdam,	55 bls.
Drammen,	67
Christiania,	4,169 704

TYNE.

Week ending December 8th.

Ammonium Chloride —	
Rotterdam,	1 ck. Tyne S. S. Co.
Barytes —	
Antwerp,	170 bgs. Tyne S. S. Co.
Rotterdam,	200 45 cks. Tyne S. S. Co.
Carbonic Acid Gas —	
Rotterdam,	50 tubes. Tyne S. S. Co.
Cellulose —	
Skien,	360 bls.

Farina —	
Hamburg,	50 bgs. Tyne S. S. Co.
Glucose —	
New York,	50 brls. J. Cook & Co.
Phosphate —	
Antwerp,	280 t. Langdale's Chemical M. Co.
Pyrites —	
Huelva,	2,859 t. Scott Bros.
Soap —	
Rotterdam,	11 cks. Tyne S. S. Co.
Soda —	
Rotterdam,	12 cks. Tyne S. S. Co.
Starch —	
Rotterdam,	60 cs. Tyne S. S. Co.
Tar —	
Hamburg,	150 cks. Tyne S. S. Co.
Tartaric Acid —	
Rotterdam,	4 cs. Tyne S. S. Co.
Whiting —	
Dieppe,	42 t.
Wood Pulp —	
Christiania,	25 bls. 56 cs. 1 pcl.
Laurvig,	750
Skien,	194
Zinc Ashes —	
Christiania,	3 cks.

GOOLE.

Week ending December 5th.

Alkali —	
Hamburg,	12 cks.
Calais,	24
Antimony —	
Boulogne,	4 cks. 2 cs.
Caoutchouc —	
Boulogne,	4 cks.
Colours —	
Hamburg,	4 cks.
Dyestuffs —	
Alizarine	
Rotterdam,	130 pkgs. 20 brls.
Extracts	
Ghent,	50 cks.
Madder	
Rotterdam,	6 cks. 1 cs.
Dyestuffs (otherwise undescribed)	
Rotterdam,	229 pkgs.
Ghent,	18 cks. 2 cs.
Boulogne,	13 7
Farina —	
Hamburg,	800 bgs.
Potash —	
Rotterdam,	20 cks.
Dunkirk,	9 60 dms.
Pyrites —	
Huelva,	953 t.
Saltpetre —	
Hamburg,	40 cks.
Rotterdam,	200 bgs.
Antwerp,	67
Starch —	
Rotterdam,	10 cs.
Sulphur Ore —	
Seville,	2,040 t.
Varnish —	
Boulogne,	22 cks.
Waste Salt —	
Hamburg,	1,000 bgs. 70 t.

GRIMSBY.

Week ending December 8th.

Chemicals (otherwise undescribed)	
Hamburg,	8 cs.
Colours —	
Antwerp,	15 cks. 27 pkgs.
Starch —	
Antwerp,	20 cs.

EXPORTS OF CHEMICAL PRODUCTSOF
THE PRINCIPAL PORTS OF THE UNITED KINGDOM.**LONDON.**

Week ending December 12th.

Acetic Acid —	
Cape Town,	3 cs. 3 bxs. £11
Sydney,	8 10 cbs. 50
Wellington,	4 cks. 36
Alkalis —	
Jamaica,	1 kg. £5
Rio de Janeiro,	10 t. 14 c. 41
E. London,	6 5
Acids —	
Cape Town,	4 kgs. £18
Bombay,	13 c. 12
Alum —	
Napier,	3 c. £2
Cape Town,	13 4
Wellington,	6 kgs. 2
Alum Cake —	
Calcutta,	18 t. 3 c. £65
Ammonia —	
Calcutta,	2 cs. £3
Cape Town,	4 kgs.
Ammonium Carbonate —	
New York,	9 18 c. £310
Yokohama,	4. 136
Sydney,	15 cs.
Dunkirk,	1
B. Ayres,	1 34

Ammonium Chloride—

Cologne,	5 t. 1 c.	£114
Piræus,	5	9
Gibraltar,	3	6
Sydney,	4	188
Cape Town,	6	11
Amsterdam,	5	10
Stockholm, 3 cks.		27
Fiume,	10	236
Philadelphia,	5	122
Hamburg, 3 cks.		24

Ammonium Sulphate—

Ghent,	25 t.	£205
Bremen,	99	1,188
Madras,	1	20
Madaira,	5	

Antimony Sulphate—

Philadelphia,	14 c.	£46
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Barytes Sulphate—

Venice,	10 cks.	£42
Leghorn,	30	105

Bisulphite of Lime—

Calcutta,	2 t. 14 c.	£50
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Boracic Acid—

Dunedin,	2 t. 4 c.	£67
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Borax—

Hamburg,	2 t. 19 c.	£65
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Calcined Magnesia—

B. Ayres,	1 c.	£7
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Calcium Chloride—

Petone, N. Z.,	2 t.	£10
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Carbolic Acid—

Treport,	3 cks.	£19
Kingston,	66 pkgs.	57
B. Ayres,	3 t. 2 c.	45
Jamaica,	2 drums.	2
Adelaide,	10	4
Rotterdam,	1 ck.	4
Colombo,	3 c.	2
Surinam,	1	4
Antwerp,	12 cs.	14
Yokohama,	4 t. 10	207
Hong Kong,	20 dms.	18
Newport News,	49 cks.	207
E. London,	30 20 cs.	26
Trinidad,	6 c.	18

Carbon Bisulphide—

B. Ayres,	1 t. 5 c.	£26
Sydney,	100 dms.	47

Carbonic Acid Gas—

Boston,	1 cs.	£15
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Caustic Potash—

Wellington,	6 c.	£9
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Caustic Soda—

Algoa Bay,	11 c.	£16
Napier,	5 t. 15	60
Wellington,	15	21
Hango,	4	6
Savannah,	1 9	20
Mauritius,	1 4	11
Cape Town,	7	18

Chemicals (otherwise unites.)—

B. Ayres,	3 cks. 6 pkgs.	£18
Honda,	2 cs.	8
Bordeaux,	18	15
Adelaide,	51 dms. 16	89
Pt. Elizabeth,	4 t. 14 c.	16
E. London,	6	10
Flushing,	1 cs. 1	50
New York,	33	519
Philadelphia,	6 t. 11 c.	104
Delagoa Bay,	1 cs. 9	15

Chloride of Lime—

B. Ayres,	1 t. 6 c.	£26
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Chloroform—

Sydney,	1 c.	£28
Genoa,	3	40

Citric Acid—

Leghorn,	2 cks.	£64
Konigsberg,	1 kg.	7
Libau,	2	61
B. Ayres,	1 t. 4 c.	29
Hamburg,	1 t.	124
Natal,	1 ck.	10
Santander,	10	65
Calcutta,	2	9
Sydney,	3 cks.	70
Lisbon,	3 cks.	20

Coal Products—

Aniline Dyes		
Melbourne,	2 cs.	£35
Aniline Oil		
Genoa,	10 dms.	£250
Aniline Salts		
New York,	8 t. 5 c.	£194
Benzine		
E. London,	2 dms.	£2
Benzol		
Rotterdam,	65 puns.	£451
Terneuzen,	40 dms.	220
Hamburg,	3 cs.	6

Naphtha

Melbourne,	30 cs.	£37
Hamburg,	10	22

Naphthaline

Delagoa Bay,	1 ck.	£2
Hamburg,	11 cks.	7
Libau,	3	17
New York,	1	2

Pitch

Dunkirk,	773 t.	£1,152
Antwerp,	123	257
St. Vincent,	5 brls.	5
Sydney, 2 cs.		10
Jamaica,	1	1
Lisbon,	4	4
Trinidad,	2 cks.	2

Pyridine

Stettin,	10 cks.	£67
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Tar

Mauritius,	1 ck.	£1
Natal,	40 pkgs. 150 dms.	28
Falkland Is.,	4 brls.	4
Rotterdam,	10	4
Trinidad,	10 cks.	94

Cobalt Oxide—

Genoa,	1 cs. 4 c.	£136
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Copper Sulphate—

Natal,	8 c.	£7
Wellington,	1	1
Alexandria,	7 t.	107
Treport,	10 4	173

Cream of Tartar—

Sydney,	21 kgs.	£69
E. London,	2 cs.	8
Wellington,	14 c.	51

Disinfectants—

Cape Town,	13 cs.	£25
Canterbury,	5	10
Kingston,	5 dms.	5
Jamaica,	1	15
Colombo,	3 t. 15 c.	100
Melbourne,	10 cs.	25
Bombay,	20 cks.	17
Sydney,	18 cs. 30 dms. 6 pks.	113
Rangoon,	15	5
Trinidad,	1 t. 1 c.	45

Iodine—

B. Ayres,	1 kg.	£34
Rosario,	1 cs.	38

Iron Sulphate—

Gibraltar,	5 c.	£2
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Lime Sulphate—

Gibraltar,	1 t.	£3
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Manure—

Barbadoes,	45 t.	£337
Natal,	5 1 c.	12
Hamburg,	5 2	51
Cape Town,	77 10	388
Mauritius,	10	120
Berbec,	20	205
Jersey,	121 5	866

Oxalic Acid—

Rosario,	1 brl.	£7
Riga,	2 c.	4

Oxygen—

Amsterdam,	1 cs.	£35
B. Ayres,		28

Phosphoric Acid—

N. Orleans,	6 t.	£325
Demerara,	2 15 c.	35

Phosphorus—

Wellington,	6 c.	£71
B. Ayres,	1 cs.	14

Potash—

Calcutta,	1 t. 1 c.	£17
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Potash Salts—

Delagoa Bay,	7 t.	£1,125
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Potassium Bichromate—

Santos,	4 c.	£10
Cape Town,	2 brls.	21
Rio de Janeiro,	4	10
Riga,	9	23
Lyttelton,	17	35

Potassium Bromide—

Calcutta,	1 c.	£7
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Potassium Chlorate—

B. Ayres,	1 t. 7 c.	£63
Hong Kong,	5	13
Calcutta,	4	12

Potassium Chloride—

Gibraltar,	1 t.	£11
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Potassium Prussiate—

Genoa,	10 cks.	£251
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Pyrogallic Acid—

Kobe,	1 c.	£52
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Saltpetre—

Invercargill,	5 c.	£7
Napier,	5	7
Knyrna,	1 kg.	1
B. Ayres,	11	13
Rio de Janeiro,	7 t. 2	170

Bahia,

Melbourne,	2 15	66
Rio de Janeiro,	1 13	35
Sydney,	3 7	32
Delagoa Bay,	1 10	80

Sheep Dip—

M. Video,	1 t. 7 c.	£47
Falkland Is.,	98 cks. 20 dms. 20 brls.	£828

Soda—

Lyttelton,	400 cs.	1,100
B. Ayres,	1,000 37 t. 646 dms	4,951

Soda Crystals—

M. Video,	2 dms.	£15
Bombay,	1 cs. 1 t. 6 c.	9

Soda Salts—

Hango,	1 t. 4 c.	£3
Jamaica,	3 6	9

Sodium Bicarbonate—

Cartagena,	1 c.	£10
Invercargill,	1 t.	8
Trinidad,	1 4	9
Philadelphia,	2 4	55
Delagoa Bay,	2	2
Christchurch,	2 3	13

Sodium Bisulphite—

Lyttelton,	2 t. 7 c.	£16
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Sodium Hyposulphite—

Adelaide,	52 t. 15 c.	£275
Oporto,	6	4

Sodium Sulphate—

Ghent,	50 t.	£50
Rosario,	20 cks.	9

Sodium Tartrate—

Lisbon,	3 c.	£10
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Strontia Baryta—

M. Video,	4 kgs.	£5
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Sulphur—

Cartagena,	4 bls.	£30
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Sulphuric Acid—

Trincomalee,	1 t. 10 c.	£10
Hong Kong,	20 cs.	17
Durban,	21	18

Superphosphate—

Gibraltar,	2 t.	£8
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Tartaric Acid—

Wellington,	2 c.	£7
Buenos Ayres,	1	6
Adelaide,	1 t. 20 kgs.	188
Boulogne,	5	26

Zinc White—

Cape Town,	10 cks.	£12
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LIVERPOOL.

Week ending December 12th.

Albumen—

New York,	5 t.	£90
Boston,	1	1 q. 46

Alum—

Pasages,	4 t. 12 c. 1 q.	£15
Lisbon,	1 8	10
Piræus,	3	21
Hamburg,	3 10 2	16
Halifax,	1 10 3	7
Alexandretta,	15 9 2	76
Aleppo,	3 9	16
San Francisco,	3 2 2	14
Smyrna,	2 4	16
Palermo,	2 16	19
Ancona,	4 16	33

Alum Cake—

Pasages,	4 t. 7 c.	£15
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Alumina Sulphate—

Halifax,	10 t. 1 c. 2 q.	£40
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Ammonium Carbonate—

Valparaiso,	15 c.	£26
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Ammonium Chloride—

Piræus,	5 c. 3 q.	£12
Havana,	10	12
Nauplia,	3 1	6
Syria,	4	8
Patras,	5	9

Ammonium Sulphate—

Venice,	32 t. 6 c.	£300
Pasages,	20 8	246
Las Palmas,	8	95
Barcelona,	2 19 3	35
Gd. Canary,	10 5	127
Demerara,	201 2 3	2,590
Baltimore,	77 12	959
Newport News,	51 2	629
Alicante,	44 bgs.	60
New York,	100 2	1,240
Valencia,	61 18	3 782

Antimony—

Lisbon,	1 ck.	
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Asbestos—

Guantanamo,	3 cs.	
Santander,	2	

Barium Chlorate—

New York,	1 t.	£97
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Bleaching Powder—

Barcelona,	6 cks.	
Boston,	638	
Genoa,	45	
Leghorn,	17	
Naples,	89	
New York,	199	
Palermo,	2	
Pasages,	15	
Rouen,	44	
Corfu,		
Ghent,		
Helsingborg,		
Newport Ne		
New York,		
Pasages,		
Philadelphia		

Porto Cabello, 10 Rouen, 90 Samarang, 8 Seville, 193 Sydney, 37 Valencia, 56 Valparaiso, 50 Yokohama, 60 Chemicals (otherwise undescr'd) Kurrachee, 1 L. 1 C. £38 Marseilles, 27 Odessa, 5 15 181 Bashire, 4 56 Alexandria, 1 37 Philadelphia, 13 2 440 Boston, 3 11 2 q 119 Portland, M., 1 37 Genoa, 3 15 138 B. Ayres, 5 cs. 36 China Clay— Boston, 1,776 t. Calcutta, 30 11 C. Bombay, 178 New York, 250 cks. Philadelphia, 699 112 bgs. Portland, 50 t. Chloride of Lime— Penaig, 3 t. £21 Chloroform— Portland, 2 cs. Citrate of Magnesia— Philadelphia, 18 cs. Coal Products— Aniline Colours Constantinople, 1 cs. Aniline Salts Bombay, 3 cks. Boston, 25 cs. Genoa, 1 pun. Grossolite Boston, 25 brls. Pitch Marseilles, 1,045 t. Tar Demerara, 30 brls. Barcelona, 8 Sierra Leone, 10 Copperas— Iquique, 3 t. £68 Bombay, 34 54 Aleppo, 3 6 C. 3 q. 7 Singapore, 4 15 8 Syra, 3 5 7 Copper Sulphate— Seville, 1 t. £16 Odessa, 3 1 C. 42 Paris, 30 3 430 Catania, 2 8 2 q. 34 Palermo, 1 13 3 23 Rotterdam, 1 10 3 23 Calcutta, 6 5 91 Madras, 1 5 18 Genoa, 5 3 72 Boston, 1 3 17 Gothenburg, 1 19 3 14 Liban, 2 8 2 34 Cream of Tartar— B. Ayres, 2 cs. £8 Disinfectants— B. Ayres, 6 C. £14 Farina— Bombay, 10 bgs. Guano— Malaga, 2 t. 3 C. £21 Laguna, 5 17 Santa Cruz, 5 17 Gypsum— New York, 15 t. £45 Lime— Demerara, 58 cks. Magnesia— Alicante, 2 t. 17 C. 3 q. £43 Rio de Janeiro, 2 cs. Havre, 70 Magnesium Sulphate— Boston, 25 brls. Rio de Janeiro, 4 kgs. Manure— Teneriffe, 61 t. 2 q. £473 N. Orleans, 605 6 C. 2 1,210 New York, 18 4 243 Sourabaya, 10 94 Ochre— Kingston, 10 brls. Valparaiso, 30 26 kgs New York, 4 cks. Paint— Accra, 44 kgs. Antofagasta, 10 cks. Arica, 3 18 cs. Cameroons, 3 4 dms.	Cartagena, 11 Havana, 11 brls. 8 50 Iquique, 215 bxs. 10 26 Para, 17 15 San Benito, 2 Sierra Leone, 273 Vera Cruz, 25 2 10 Valparaiso, 2 bxs. 1 5 p kgs. Antwerp, 33 Beyrout, 21 Bathurst, 46 Callao, 40 cns. 10 20 dms. Fiume, 41 Havre, 2 36 Hong Kong, 20 Huelva, 1 Macao, 20 Mazatlan, 5 N. Orleans, 1 brl. New York, 100 Palermo, 12 Porto Ncva, 20 Rosario, 48 St. John's, N.Yd., 2 St. Thomas, 2 Singapore, 36 Talcuano, 20 10 Trieste, 12 Paints and Painters' Colours— Lagos, 72 kgs. 2 cks. 4 dms. Painters' Colours— Ancona, 22 cks. Bombay, 218 kgs. 1 cs. B. Ayres, 100 Demerara, 3 Genoa, 80 bgs. 4 Gothenburg, 5 Hamburg, 100 Havana, 5 tcs. Hong Kong, 5 Marseilles, 10 t. Progresso, 150 kgs. Salonica, 5 brls Savanna, 3 cs. Valparaiso, 90 Barcelona, 10 Baltimore, 70 1,700 Brass, 2 p kgs. Calcutta, 120 3 Havre, 1 Lisbon, 4 brls Manaoa, 10 3 M. Video, 10 5 N. York, 31 dms. 1 748 9 Pernambuco, 10 Portland, 34 Pt. Natal, 112 Rosario, 11 Sierra Leone, 40 Paraffin Wax— Bari, 30 brls. Phosphorus— Vera Cruz, 5 C. £55 Plumbago— Pernambuco, 3 hds. Potassium Bichromate— Smyrna, 3 brls. £2 Potassium Carbonate— Antwerp, 1 t. 4 C. £31 Potassium Chlorate— Reval, 5 t. £318 Libau, 392 14 C. Shanghai, 5 293 Rouen, 1 59 Rotterdam, 10 3 Santander, 1 63 Toronto, 1 56 New York, 26 5 1,463 Seville, 2 5 Malta, 2 8 Bari, 1 56 Naples, 6 19 Potassium Iodide— Maranham, 1 brl. £76 Salt— Antwerp, 186 t. 13 C. Boston, 300 Calcutta, 1,518 2 Cameroons, 83 10 Faroe Isles, 159 Melbourne, 20 Newcastle, N.S.W., 110 t. N. Orleans, 300 t. Para, 1,232 17 C. Porto Nova, 25 Rangoon, 1,020 Rotterdam, 149 Savannah, 600 Sierra Leone, 105 Sydney, 100 Stockholm, 5 Victoria, B.C., 150 Demerara, 44 10	Accra, 18 Akassa, 300 Bonny, 80 B. Ayres, 3 Conakry, 50 Copenhagen, 517 Drewin, 5 Gd. Bassam, 11 2 Hamburg, 100 Lagos, 20 Monrovia, 10 New York, 215 Old Calabar, 32 16 Pernambuco, 65 Rio de Janeiro, 2 Rouen, 10 Salt Pond, 13 10 Valparaiso, 100 Salt Cake— Philadelphia, 110 t. 4 C. £137 Leghorn, 150 112 Baltimore, 40 3 52 Saltpetre— Rio de Janeiro, 1 t. 6 C. 3 q. £32 Para, 7 10 175 Sheep Dip— Fremantle, 14 C. 1 q. £24 B. Ayres, 750 dms. 525 M. Video, 100 gall. 5 t. 128 Cape Town, 3 C. 10 Slag— Teneriffe, 2 t. £4 Soap— Achim, 30 bxs. Bombay, 403 86 cs. B. Ayres, 1 Cameroons, 50 Congo, 12 Corinto, 1 Curacao, 300 Demerara, 2,300 5 bds. Genoa, 22 Gibraltar, 52 Gd. Drewin, 12 Kingston, 400 Kurrachee, 507 Leghorn, 1 Manaoa, 125 1 Monrovia, 52 New York, 110 43 Para, 13 Quittah, 100 St. Lucia, 105 Salt Pond, 200 Shanghai, 452 5 Trinidad, 210 Vera Cruz, 1 Alexandria, 62 Algiers, 1 ck. Antwerp, 600 Belize, 210 bxs. 50 hf. bxs. Callao, 20 cs. Christiania, 120 Copenhagen, 30 Hong Kong, 3 Lagos, 50 Las Palmas, 140 Malta, 80 Marseilles, 8 Paris, 105 Rangoon, 500 10 Rotterdam, 299 St. John's, Nfld., 10 St. Thomas, 600 Sierra Leone, 1 Singapore, 30 Smyrna, 25 Teneriffe, 318 1 Pt. Natal, 160 Barcelona, 70 brls. Corunna, 6 cks. Lisbon, 10 Melbourne, 2 dms. Para, 100 Soda Ash— Antwerp, 800 bgs. Baltimore, 1,118 117 cks. Ceara, 5 brls. Constantinople, 160 Corfu, 160 Cornwall, 12 Ne'port News, 1,040 New York, 2,824 51 Oporto, 4 Para, 10 kgs. Piraeus, 70 Rio de Janeiro, 120 Alton, 667 Bahia, 15 kgs. Barcelona, 50 63 Boston, 200 322 Cartagena, 10 Christiania, 15 Copenhagen, 100 Coquimbo, 6	Genoa, 190 Milwaukee, 400 Naples, 120 Pernambuco, 667 90 30 764 tcs. 3,240 p kgs. Piraeus, 40 Stockholm, 4 Syra, 5 brls. Soda Crystals— Malta, 50 brls. Philadelphia, 417 490 cks 127 kgs. Sodium Arsenate— New York, 20 cks. Sodium Biborate— Genoa, 20 cs. Sodium Bicarbonate— Havre, 40 kgs. 25 cks. Marseilles, 25 Odessa, 160 Sourabaya, 4 Trebizonde, 50 Vera Cruz, 10 Antwerp, 10 Barcelona, 82 Genoa, 97 Leghorn, 25 Malaga, 30 Malta, 20 bgs. Montreal, 5 Naples, 50 New York, 112 Philadelphia, 275 100 Seville, 100 Smyrna, 20 Sodium Chlorate— Antwerp, 106 kgs Genoa, 20 Reval, 50 Hamburg, 24 Sodium Nitrate— Oporto, 17 bgs. Sodium Silicate— Malta, 12 brls.<
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Ammonium Sulphate—

Malaga, 451 bgs.
Valencia, 507

Aniline Oil—

Barcelona, 5 dms. 10 cks.

Carbolic Acid—

Rouen, 191 btl. 4 cs.

Caustic Soda—

Malaga, 152 dms.

Extracts—

Rouen, 4 cks.

Manure—

Hamburg, 2 t.

Paraffin Wax—

Hamburg, 30 bgs.

Pitch—

Antwerp, 103 t.

Soap—

Hamburg, 1 cs.

Sodium Bicarbonate—

Malaga, 50 brls.

Tar—

Rouen, 4 cks.

Tar Salts—

Antwerp, 31 cks.

HULL.

Week ending December 8th.

Bleaching Powder—

Boston, 191 cks

Caustic Soda—

Bari, 52 dms.

Hango, 3 cks.

Reval, 26

Chemicals (otherwise undescribed)

Antwerp, 20 cs.

Amsterdam, 8 pkgs.

Alexandria, 12

Bremen, 12

Bari, 10

Bergen, 250

Bombay, 1,527

Copenhagen, 8

Christiania, 12

Constantinople, 791 slbs.

Gothenburg, 10

Hamburg, 65

Kurrachee, 382

Konigsberg, 10

Norrkoping, 10

Odessa, 57

Rotterdam, 80

Reval, 157

Stettin, 6

Trieste, 1

Cottonseed Oil—

Amsterdam, 21 c.

Alexandria, 27

Bremen, 200

Copenhagen, 270

Drontheim, 41

Fiume, 100

Gothenburg, 54

Hamburg, 1,337

Konigsberg, 145

Rotterdam, 1,811

Stettin, 439

Trieste, 304

Dyestuffs—

Extracts

Rouen, 8 cks.

Dyestuffs (otherwise undescribed)

Boston, 28 cks.

Dunkirk, 1

Rotterdam, 22

Reval, 1 cs.

Stettin, 12

Linseed Oil—

Amsterdam, 16 c.

Alexandria, 59

Bergen, 21

Bombay, 193

Copenhagen, 17

Christiania, 106

Constantinople, 42

Drontheim, 17

New York, 35

Rotterdam, 252

Stavanger, 87

Litharge—

Helsingfors, 10 cks.

Manure—

Reval, 5 t.

Naphthaline—

Riga, 180 bgs.

Paint—

Dunkirk, 8 pkgs.

Painters' Colours—

Antwerp, 13 cks. 2 dms. 35 pkgs.

Amsterdam, 8

Aalesund, 1 cs.

Boston, 2

Bombay, 30

Copenhagen, 1

Christiania, 2

Drontheim, 1

Dunkirk, 1

Fiume, 5

Gothenburg, 2

Hamburg, 90

New York, 5

Odessa, 200

Riga, 10

Rouen, 6

Rotterdam, 2

Stettin, 24

Barl, 2

Phosphorus—

Rotterdam, 20 cs.

Pitch—

Antwerp, 194 t.

Soap—

Rotterdam, 1 drn.

Reval, 1 cs.

Tallow—

Amsterdam, 2 cks.

Gothenburg, 1

Rotterdam, 30

Stockholm, 5

Tar—

Stettin, 4 cks.

Varnish—

Antwerp, 2 cs. 5 cks.

Christiania, 1

Gothenburg, 1

Hamburg, 1

Rouen, 1

Whiting—

Bombay, 13 cks.

GLASGOW.

Week ending December 13th.

Acid—

Bombay, 13 t. 14 c. £63. 15s.

Albumen—

Portland, 9 t. 17 c. £550

Ammonium Carbonate—

Valparaiso, 1 t. £38

Ammonium Sulphate—

New York, 101 t. 18 c. £1,259

Bleaching Powder—

Melbourne, 18 t. 12½ c. £142

Castor Oil—

Adelaide, 158 glns. £40

Caustic Soda—

Singapore, 2 t. 19 c. £24

Coal Products—

Aniline Dye

Calcutta, £41

Naphtha

Rouen, 20 t. 8 c. £246

Pitch

Calcutta, £60. 10s.

Antwerp, 460 t.

New York, 77

Tar

Calcutta, £333

Singapore, 23 t. 14 c.

Riga, 200 brls.

Portland, 73

New York, 23

Coal Products (otherwise undes.)

Rotterdam, 40 dms. £595

Cod Oil—

Melbourne, 2 t. 2½ c. £40

Copperas—

Bombay, 36 t. £52

Copper Sulphate—

Bordeaux, 34 t. 19¾ c. £538

Dyestuffs—

Indigo Extract

Portland, 1 t. 2½ c. £31

Logwood

Oporto, 11 t. 3½ c. £102. 7s.

Portland, 2

Melbourne, 2

Dyestuffs (otherwise undescribed)

Melbourne, 1 t. 1¾ c. £22

Farina—

Philadelphia, 2 t. 10 c. £33

Oporto, 2

Glucose—

New York, 430½ glns. £113

Cape Colony, 19 t. ¾ c. 221

Iodine—

Rotterdam, 3 cks. £760

Lead Acetate—

Bombay, 4 t. 15½ c. £66. 10s.

Linseed Oil—

Calcutta, 13½ c. £24. 16s.

Cape Colony, 1 t. 3½

Valparaiso, 5

Adelaide, 240

Melbourne, 3

Litharge—

Oporto, 10 t. 18½ c. £133

Magnesium Sulphate—

Adelaide, 3 t. 12 c. £22

Manganese Oxide—

New York, 9 t. 18 c. £90

Philadelphia, 2

Paint—

New York, 11 t. ½ c. £808

Colombo, 39

Calcutta, 285

Cape Colony, 47

Paint and Painters' Colours—

Singapore, £204

Painters' Colours—

Japan, 6 t. 12 c. £125

Bombay, 61

Cape Colony, 74

Melbourne, £72. 10s.

Calcutta, 2

Paraffin Wax—

Japan, 11,062 lbs. £140

Cape Colony, 11 t. 1 c.

Riga, 1

Bordeaux, 4

Potash Salts—

Madras, 7 t. 10 c. £670

Potassium Bichromate—

Rotterdam, 12 cks. £196

Philadelphia, 16 t. 12¾ c. 660

Bombay, 3

Oporto, 5

Rouen, 17

New York, 61

Salt—

Valparaiso, 9 t. 16½ c. £62

Slag—

Rotterdam, 552 t. £123

Soap—

Cape Colony, 2 t. 11 c. £53

Valparaiso, 1

Soda Crystals—

Chili, 55 t. £127

Sodium Bichromate—

Bombay, 1 t. 12¾ c. £50

Portland, 8¾

Rouen, 11

New York, 17

Sodium Phosphate—

New York, 11 t. 3½ c. £127

Superphosphates—

Oporto, 200 t. £550

Sulphuric Acid—

Madras, 1 t. 17½ c. £20

Tallow—

Rotterdam, 12 t. 2 c. £350

Oporto, 1

Tartaric Acid—

Portland, 42 t. 3 c. £158

Turpentine—

Calcutta, 600 glns. £52. 10s.

Yarnish—

Calcutta, 150 glns. £60

Cape Colony, 52

White Lead—

Cape Colony, 1 t. 15¾ c. £41. 16s.

Calcutta, 10

Halifax, 118

TYNE.

Week ending December 8th.

Alkali—

Rotterdam, 6 t. 5 c.

Libau, 5

Antwerp, 5

Antimony—

Rotterdam, 2 t.

Asbestos—

Passages, 3 c.

PRICES CURRENT.

WEDNESDAY, DEC. 19th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	10/9	
" Glacial	"	50/-		
Arsenic S.G., 2000°	"	0	14	6
Fluoric	per lb.	0	0	3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0	0	10
" (Cylinder), 30° Tw.	"	0	3	0
Nitric 80° Tw.	per lb.	0	0	1 3/4
Nitrous	"	0	0	1 3/4
Oxalic	nett	0	0	3 3/4
Phosphoric, 1750°	"	0	0	11
Picric	"	0	1	0
Sulphuric (fuming 50 %)	per ton	15	10	0
" (monohydrate)	"	5	10	0
" (Pyrites, 168°)	"	3	0	0
" " 150°	"	1	5	0
" (free from arsenic, 145°)	"	1	6	0
Sulphurous (solution) S.G. 1025	"	3	0	0
Tannic (pure)	per lb.	0	1	0
Tartaric	"	0	0	11
Arsenic, white powdered	nett per ton	14	5	0
Alum (loose lump)	"	4	17	6
Alumina Sulphate (pure)	"	4	17	6
Aluminoferrous	"	2	7	6
Aluminium	per lb.	0	3	0
Ammonia, Anhydrous	"	0	1	4
" 880=28° B.	per lb.	0	0	3
" =24° B.	"	0	0	2 3/4
" Carbonate	nett	0	0	3 3/4
" Muriate	per ton	23	10	0
" (sal-ammoniac) 1st & 2nd	per cwt.	39/-	37/-	
" Nitrate	per ton	41	0	0
" Phosphate	per lb.	0	0	10 3/4
" Sulphate (grey) London	per ton	11	2	6
" (grey) Hull	"	11	2	6
Aniline Oil (pure)	per lb.	0	0	5 3/4
Aniline Salt	"	0	0	4 3/4
Antimony	per ton	33	5	0
" (tartar emetic)	per lb.	0	0	9 3/4
" (golden sulphide)	"	0	0	10
Barium Chloride	per ton	6	10	0
" Carbonate (native)	"	3	5	0
" Sulphate (native levigated)	"	45/-	to 75/-	
Bleaching Powder, 35 %	nett	7	5	0
" Liquor, 7 %	"	3	10	0
Bisulphide of Carbon	"	11	5	0
Chromium Acetate (crystal)	per lb.	0	0	6
Calcium Chloride	per ton	2	2	6
China Clay (at Runcorn) in bulk	"	17/6	to 30/-	
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0	0	8
Magenta	"	0	3	9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0	1	1
Benzol, 90 % nominal	per gallon	0	1	1
" 50/90	"	0	1	1
Carbolic Acid (crystallised 40°)	per lb.	0	0	5
" (crude 60°)	per gallon	0	1	5 1/2
Creosote (ordinary)	"	0	0	2
" (filtered for Lucigen light)	"	0	0	2 1/2
Crude Naphtha 30 % @ 120° C.	"	0	0	5 3/4
Grease Oils, 22° Tw.	per ton	2	10	0
Pitch, f.o.b. Liverpool or Garston	"	1	13	0
Solvent Naphtha, 90 % at 160°	per gallon	0	1	2 1/2
Lucigen and " Wells Oils	"	0	0	2 1/2
Copper	per ton	41	0	0
" Sulphate	"	14	15	0
" Oxide (copper scales)	"	39	0	0
Glycerine (crude)	"	15	0	0
" (distilled S.G. 1250°)	"	41	0	0
Iodine	nett, per oz.	0	0	9
Iron Sulphate (copperas)	per ton	1	5	0
" Sulphide (antimony slag)	"	2	0	0
Lead (sheet) for cash	"	10	15	0
" Litharge Flake (ex ship)	"	13	10	0
" Acetate (white ")	"	24	15	0
" " brown ")	"	15	10	0
" Carbonate (white lead) pure	"	16	0	0
" Nitrate	"	20	0	0
Lime, Acetate (brown)	per ton	6	2	6
" (grey)	"	9	17	6
Magnesium (ribbon and wire)	per oz.	0	2	3
" Chloride (ex ship)	per ton	2	10	0
" Carbonate	per cwt.	1	17	6
" Hydrate	per ton	17	0	0
" Sulphate (Epsom Salts)	per ton	3	0	0
Manganese, Sulphate	"	17	15	0
" Borate	per cwt.	2	15	0
" Ore, 70 %	per ton	4	5	0
Methylated Spirit, 61° O.P.	per gallon	0	1	10
Naphtha (Wood), Solvent	"	0	3	0
" Miscible, 60° O.P.	"	0	3	3
Oils:—				
Cotton-seed	per on	19	0	0
Linseed	"	21	10	0
Petroleum, American	per gallon	0	0	5 1/2
Stearine	per ton	26	0	0
Phosphorus (yellow)	per lb.	0	2	2
" (red)	"	0	2	8
Potassium (metal)	per oz.	0	3	7
" Bichromate	nett per lb.	0	0	4 1/2
" Carbonate, 90 % (ex ship)	per ton	16	15	0
" Chlorate	per lb.	0	0	5 1/2
" Cyanide, 98 %	"	0	2	2
" Hydrate (Caustic Potash) 80/85 %	per ton	21	10	0
" " (Caustic Potash) 75/80 %	"	20	0	0
" " (Caustic Potash) 70/75 %	"	19	10	0
" Nitrate (refined)	per cwt.	1	2	6
" Permanganate	per cwt.	3	2	6
" Prussiate Yellow	per lb.	0	0	10
" Sulphate, 90 % (ex ship)	per ton	9	15	0
" Muriate, 80 % (do.)	"	8	7	6
Silver (metal)	per oz.	0	2	3 3/4
" Nitrate	"	0	2	10
Sodium (metal)	per lb.	0	3	0
" Carb. (refined Soda-ash) 48 %	nett per ton	4	15	0
" " (Caustic Soda-ash) 48 %	"	4	0	0
" " (Carb. Soda-ash) 48 %	"	4	0	0
" " (Alkali) 58 %	"	4	0	0
" " (Soda Crystals)	"	2	5	0
" Acetate (ex-ship)	"	14	5	0
" Arseniate, 45 %	"	11	0	0
" Chlorate	per lb.	0	0	7 1/4
" Borate (Borax)	net, per ton	20	0	0
" Bichromate	per lb.	0	0	3 3/4
" Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton	lots	10	0	0
" " (74 % Caustic Soda) " "	"	9	2	6
" " (70 % Caustic Soda) " "	"	8	2	6
" " (60 % Caustic Soda) " "	"	7	2	6
" " (60 % Caustic Soda, cream) (f.o.b.)	"	7	0	0
" Bicarbonate	"	5	12	6
" Hyposulphite	"	5	10	0
" Manganate, 30 %	"	16	0	0
" Nitrate (95 % ex-ship Liverpool)	per cwt.	0	8	9
" Nitrite, 98 %	per ton	29	0	0
" Phosphate	"	15	0	0
" Silicate (glass)	per ton	5	2	6
" " (liquid, 100° Tw.)	"	4	5	0
" Stannate, 40 %	per cwt.	3	2	9
" Sulphate (Salt-cake)	per ton	0	17	6
" " (Glauber's Salts)	"	1	5	0
" Sulphide	"	8	10	0
" Sulphite	"	5	7	6
Strontium Hydrate, 100 %	"	8	10	0
Sulphocyanide Ammonium, 95 %	per lb.	0	0	7
" Barium, 95 %	"	0	0	5
" Potassium	"	0	0	7 1/2
Sulphur (Flowers)	per ton	7	5	0
" (Roll Brimstone)	"	5	5	0
" Brimstone: Best Quality	"	3	15	0
Superphosphate of Lime (26 %)	"	2	7	6
Tallow	"	24	10	0
Tin Crystals	per lb.	0	0	6
" English Ingots	"	66	10	0
Zinc (Spelter)	per ton	14	10	0
" Chloride (solution, 100° Tw.)	"	5	7	6

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Notices.

ON JANUARY 19TH, 1895, OUR
ANNUAL SPECIAL ISSUE

Will Appear as Usual.

THIS DOUBLE NUMBER will, in addition to the ordinary features of the *Journal*, contain

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CURRENT TOPICS.

PRACTICAL AGRICULTURAL EDUCATION.

WE have heard of the depression in agriculture *ad nauseam*, and those who like to feed their hopes of amelioration on every scheme that is proposed, must by this time have fed to repletion.

One of the means of amendment, however, capable of accomplishing some good, if properly utilised, is to extend agricultural education.

A series of articles appeared in these columns two or three years ago, in which a very striking comparison was drawn between the methods then in vogue in this country and the United States for the spread of helpful and simple information among practical farmers. It is in a measure true that farmers of the old school think they have nothing to learn. Moreover, it is an unfortunate fact that some who have sent their sons to study geonics at the Institutions in which instruction is given, have had good cause to speak slightly of the advantages accruing from the expense of educating the rising generation in the modern practice of agriculture.

As we have pointed out before, what is wanted is not so much wholesale scientific education for one and all as a means of making known to the rank and file the advantage of practically applying the *data* elucidated by the scientific investigations of those who have proved their ability to grapple with the knotty points of practical agriculture.

It is encouraging to know that experimental farms are growing in number in this country. It will be a long while before we can make anything like the show the Americans do, but everything is accomplished by doing a little piece at a time.

The action of the Lancashire County Council in establishing an experimental farm at Hutton, near Preston, brings us another step nearer the goal. The farm and dairy appear to afford every facility for carrying out experiments under favourable conditions and for also affording students an object lesson in how things ought to be done. This is the case not only in one department, but in all. The accommodation for the collection and preservation of the manure in the stack-yard would, we should think, make an impression upon even the most casual student.

Arrangements have been made to conduct experiments on the manuring of crops and grass, so as to ascertain the best means of attaining the maximum result at a minimum cost, and other valuable experiments are on the *tapis*.

Though this emulation of the United States system is most commendable, there is one feature of our "cousins'" excellent scheme which stands in danger of being overlooked, and that is the cheap dissemination of the valuable results which will be obtained at these farms, which would otherwise be known only to a limited few. It is highly important that the information which will thus be rendered available shall not be allowed to lie dormant. In the States the bulletins enable

any farmer to see what is being done in that particular branch of agriculture in which he is most interested. On this side we have virtually no means of enabling farmers to do this. Till we have, the agricultural public will continue to distrust the value of higher education in agriculture.

It will not suffice merely to place on record the experiments performed, leaving the readers to deduce their own deductions. Much more than that needs to be done. The object of each experiment must be clearly set forth, followed by a description of the experiments made and the results obtained. In addition even to this, it is desirable that a summary should be appended commenting on the teaching of the results, and indicating the advantages or disadvantages of any mode of treatment as the case may be.

Bare scientific facts are virtually useless to the average farmer, and will be for a long time to come. In America they have recognised this, and have taken steps to meet the wants of farmers. The success that has attended their system is apparent. Is something of the same kind to be done in this country while there is time, or is the matter to be left until chemistry on the farm has become a by-word among the uninitiated?

ROUGH ON THE ATMOSPHERE.

A case of some interest is reported in our columns this week under the heading of "Legal Intelligence." A certain stout merchant had need of open coke fires to air and warm his vaults in winter. The sulphurous fumes, it was alleged, found their way into a neighbouring house, and destroyed the mirrors and other fittings. A somewhat graphic description is given of the damage done, and it is quite possible to imagine that a great amount of harm would result to furniture and metal fittings exposed to the fumes from burning coke.

The defence, however, is rather ingenious. In the first place it was contended that the London atmosphere was quite capable of doing, of its own accord, all the damage reported. The second argument was, that the vaults being higher on the side nearest to the damaged house, the tendency would be for the heated and polluted air to rise, and so create a draught away from the house in question instead of into it. This sounds very plausible, but nothing is said about the possibility of the hot sulphurous air collecting naturally in the highest part of the vaults and their endeavouring to find an outlet, perhaps, into the neighbouring house.

Eventually a settlement was arrived at, the terms of which were not divulged. But the Lord Chief Justice made known one commonsense method of getting over the difficulty, and that was to close up the holes through which it was thought the sulphur dioxide found its way into the neighbouring house. The amusing part is that it should have taken a lawsuit to bring out this obviously simple solution. Had the plaintiff done this and found relief, he would only have strengthened his plea for damages.

JUST ONE MORE.

We have been treated to yet another smoke preventer. This time it is based on the idea of causing the smoke as it leaves the furnace to pass downwards through a flue, in which it meets a fine spray of water thrown up into the descending smoke.

It is claimed to be giving very good results at certain places. As much, it is stated, as 90 per cent. of the solid matter of the smoke, and over 50 per cent. of the sulphur dioxide is being removed, and for household purposes it is also stated to give good results. It is even claimed as a feature that

while preventing the smoke, householders are preparing a "disinfectant of considerable power."

In the case of a boiler chimney, it is stated that the soot and acid solution run into the drains. We do not know how long municipal bodies would be content to allow this weak solution of sulphuric acid in embryo to be poured into their sewers, but, to judge by their actions in regard to the emission of black smoke at the top of the chimney, we do not think they would tolerate for long the discharge of a stream of acid and soot from the bottom. They would contend that it was only a conversion of the nuisance, and not an abatement.

PROSECUTIONS FOR THE EMISSION OF BLACK SMOKE.

PLEA FOR RATIONAL TREATMENT.

ON Friday week, 21st inst., an influential deputation from the Manchester Chamber of Commerce had an interview with the Sanitary Committee of the Manchester Corporation, Mr. Councillor M'Dougall being in the chair. Amongst other well-known manufacturers, there were present Mr. Thewlis Johnson, an ex-president of the Chamber, who introduced the deputation, including Mr. Ivan Levinstein, Mr. R. K. Birley (Charles Macintosh and Co.), Mr. R. Le Neve Foster (F. C. Calvert and Co.), and Mr. H. Grimshaw, and representatives of Robinson's, Moir, Crane, and Co., David Shaw and Co., John Barrow and Sons, Clayton Aniline Co., Messrs. Cawley, Messrs. Clemson, Mr. Edward Williams, and C. T. Schofield and Co. Although the trades affected had not been canvassed, the deputation only consisting of members of the Manchester Chamber of Commerce, as many as thirty-three firms were represented, comprising iron and steel manufacturers, engine and machine tool makers, manufacturing chemists, dyers, indiarubber manufacturers, colliery proprietors, and others. The total rateable annual value represented by the deputation was £112,000., the number of workpeople employed 14,000, and the weekly consumption of coal 9,000 tons. The number of workpeople represented constituted one-tenth of the labour employed in the Manchester district.

In introducing the deputation, Mr. Johnson pointed out the difficulties that manufacturers were labouring under in trying to comply with the requirements of the Committee.

Mr. Ivan Levinstein (chairman of the Chemical Sectional Committee of the Chamber), in stating the case for the deputation, said: We do not appear before you to-day to ask you for an unlimited licence to emit black smoke, but to put before you the justice and need of discriminating and differentiating in the application of the law between preventable, difficultly preventable, and practically not preventable causes. The producers of smoke in manufacturing operations may be divided in three classes, firstly those who generate steam and apply it in an indirect manner, namely, as motive power, secondly those who raise steam and apply it directly, thirdly those who generate heat from coal and apply the heat direct to various manufacturing processes. We are all agreed that in all such cases in which there is a regular and easily calculable quantity of steam used all day long, as for instance for driving cotton machinery, there is no difficulty whatever in avoiding, even without any mechanical appliances, the emission of black smoke. All that is here required is sufficient boiler space and ordinary skilful firing. The case is, however, very different with such manufacturers who require direct, or as it is technically called, live steam, for heating purposes, as for instance in dyeworks, printworks, &c., where large volumes of cold liquors have to be rapidly raised to boiling heat. In these cases, even with sufficient boiler space and with all due care in firing the occasional emission of black smoke is most difficult to avoid, for the reason that the pressure of steam rapidly falls as soon as the taps are turned on, and as long as the liquors are comparatively cold hard firing becomes necessary in order to keep steam up. It is well known that with hard firing even the best mechanical appliances do not prevent the occasional emission of black smoke. In such works you have intermittent use of steam because at a certain time of the day suddenly large quantities of steam are wanted, at other times considerably less, and so on during the day. Then there is a third class of manufacturers, who use direct coal fire, such as for instance in metallurgical and chemical operations where furnaces, stills, retorts, pans have to be heated, and in these the emission of a certain amount of black smoke cannot be altogether prevented with all the present known appliances. In these operations very high temperatures have to be rapidly produced, and when they are obtained fires have to be slackened down, and shortly afterwards have to be re-opened, and again high temperatures must be

as quickly as possible produced, and so on. In other words, you are dealing with intermittent firing. There are, again, other operations in which not a bright fire but a black fire is required, viz., in so-called reducing operations, black ash furnaces, and other operations. In all these and similar cases we say that the emission of black smoke to a certain extent cannot be avoided. It must be therefore obvious there ought to be a discrimination in the application of the law in regard to the various trades, but this is by no means the case. We are all fined alike, all prosecuted alike, whether we use steam direct or indirect, or have to use steam or fire intermittently. The consequence is that firms doing their best to avoid any emission of black smoke are fined and re-fined for offences over which they have no control. But is this anomalous, almost ludicrous, state going to continue? If it is, many producers, tired of this continuing harassing, will finally remove their works away from Manchester, with a consequent loss to the city of thousands and thousands of pounds of rates, and loss of employment for thousands of our workpeople. We are met by well-intending but ignorant advisers, that there is no need whatever for the emission of any black smoke in any trade, and we are recommended the use of anthracite coal, or by others the use of producer gas. As for anthracite, such advice may be given to householders who are answerable for two-thirds of all the smoke in Manchester, but for manufacturing operations it would simply mean ruin to the manufacturers on account of its high price, which is nearly treble that of coal. In regard to producer gas, this is also unpractical for many purposes, and too dear for others. We, therefore, pray you to discriminate between the various causes accounting for the emission of black smoke at times, and not to drag respectable firms into the police courts for no fault of their own, for we do not believe that it can be the policy of such an enlightened body as the Manchester Corporation to harass traders or to drive manufacturers away from Manchester, and thus to seriously interfere with the employment of the workpeople of this great city.

Mr. Pollitt (of the M. S., and L. Ry. Co.) followed Mr. Levinstein, and supported his remarks upon intermittent firing.

Mr. Fred Cawley emphasised the difficulties which dyers have to contend with.

Mr. R. Le Neve Foster drew special attention to the fact that in other towns the law concerning the emission of black smoke was administered differently according to circumstances, and that a distinction was made in certain towns between avoidable and unavoidable smoke. Nowhere were they so severe as in Manchester. In support of this statement he gave the following particulars as to the practice of other towns:—

Oldham: This Corporation does not take proceedings against manufacturers for permitting black smoke to be emitted from their chimneys if the emission does not exceed nine minutes in the hour. *St. Helens*: The emission of black smoke continuously for more than five minutes is deemed to be a nuisance within the meaning of the Public Health Act, 1875. *Widnes*: No time is fixed here for the issuing of black smoke before deeming it a nuisance; Widnes, being a manufacturing town, necessarily stands in a somewhat different position to other places, and except in very flagrant cases but little attention has been given to this matter. *Rochdale*: No limit has been fixed. *Wolverhampton*: The limit allowed in this town for the emission of dense black smoke by fire has been deemed a nuisance under Sec. 91 of the Public Health Act, 1875, is decided by the Medical Officer of Health, and depends upon the situation and height of the chimney, and the trade carried on in the factory. *Newcastle-on-Tyne*: Five minutes is allowed for the emission of dense black smoke from factory chimneys before it is deemed a nuisance. *Leeds*: The inspector allows five minutes dense black smoke in the hour before taking any action. *Birmingham*: The Town Clerk had written to say: "I do not remember a summons being taken out against a person in respect of any emission that was not over fifteen minutes in the hour." *Sheffield*: The limit allowed is six minutes in the hour, but in cases where not more than three steam engine boilers and no furnaces are connected with a chimney the limit is four minutes in the hour only. *Stoke-on-Trent*: No actual limit, but generally if emitted longer than fifteen minutes proceedings are taken. *Bolton*: Dense black smoke issuing from the chimney for as long as two and a half minutes in the half-hour is finable.

Mr. Grimshaw drew attention to the unsatisfactoriness of the system of observation, and pointed out the incongruity of the Inspector's evidence being the sole evidence adduced; when in other criminal cases confirmatory evidence was always taken. He also said it was unfair that gentlemen of position should be summoned before the justices, and have to wait in court like common culprits till their cases were disposed of.

Mr. Hulton spoke further in support of the points raised by Mr. Grimshaw, emphasising the opprobrium of Police Court proceedings in which respectable citizens were kept waiting for the hearing of their case in the company of pickpockets, &c. He suggested the Sanitary Committee should enable manufacturers to appear and explain their conditions of working before prosecuting.

Mr. Edward Williams closed the case for the deputation. He said fourteen months ago he introduced a similar deputation to the Committee, and it was mutually agreed that the summonses then issued should be withdrawn for six months so that each firm might do all that was possible in order to remove any cause of complaint. The gentlemen who attended the present meeting were there to prove everything possible had been done, both by improved appliances and care. Whilst recognising that the Sanitary Committee were in no way hostile to the manufacturers of the city, and that they were chiefly moved by the action of an association, the members of which were actuated by proper motives for the health of the city, at the same time they had not sufficiently considered the difficulties that were in the way, and they were practically driving out industries from the city. He was sure the Committee would take into consideration the importance of the deputation. There was a large interest at stake, and he appealed to them to stay their hand at a time when industries were so crippled.

Councillor M'Dougall promised that the statements made by the deputation should have careful consideration, and there is good reason to suppose that the deputation made a favourable impression.

BLASTING EXPLOSIVES IN MINES.

IN a lecture on blasting explosives, given at the Society of Arts on Monday last week, Professor Vivian B. Lewes, of the Royal Naval College, made some interesting remarks upon the cause of explosions in dusty mines free from firedamp. He pointed out that until quite recently explosions in mines were always attributed to the accidental ignition of mixtures of air and methane, to which the name of "fire-damp" was given, and undoubtedly this cause was the prime factor in this class of disaster, and the introduction of such precautions as safety-lamps at once brought about a considerable reduction in the number of explosions taking place. It was found that explosions in mines might be brought about—first, by the ignition of a mixture of methane and air, in which the former rose above a certain percentage; secondly, by mixtures of air, coaldust, and methane, in which the amount of the last-mentioned may be excessively small; lastly, by mixtures of coaldust and air. In cases recently investigated powder was the blasting agent used, and such powder as was employed for this purpose gave, amongst the products of combustion, nearly half the volume of permanent gases in the condition of carbon monoxide, methane, and hydrogen. The experiments and investigations in various colliery explosions made it abundantly manifest that no explosive should be licensed for use in mines unless it could be absolutely proved that it gave off no inflammable products of combustion. He urged the absolute necessity of legislative enactments at once forbidding the use of blasting powder in any coalmines, no matter how free they might appear to be from firedamp or from dust, and if they examined the returns made as to deaths caused by gunpowder and other explosives in mines for the year 1892 it would be clearly seen that the exclusion of gunpowder in handling alone would do away with 80 per cent. of the accidents, whilst if explosives of the Sprengel class were employed accidents due to the explosives used would be practically eliminated from the mining death-roll, and it was only a question of time as to when England would follow the action of France and Germany in altogether prohibiting the use of blasting powder in dusty mines.

EXPORTS OF TIN PLATES.—More than 32,000 tons of tin plates and sheets were exported during the last month, being of the value of £392,893. This is nearly 10,000 tons more than the quantity exported in the same month of last year, and an increase in value of nearly £50,000. But, while the total value for the year 1892, up to and inclusive of November, was £4,881,203, and that for the same period of 1893 was £4,680,350, it is now only £3,891,146, or a decrease of nearly a million sterling compared with 1892, and of almost £800,000, compared with last year.

IT SPOKE FOR ITSELF.—An American contemporary records the following tale of how a preacher tested the effect of hard times upon his congregation. At the conclusion of one of his sermons, he said: "Let everybody in the house who is paying his debts stand up." Instantly every man, woman, and child, with one exception, arose to their feet. He seated the crowd, and then said, "let every man who is not paying his debts, stand up." The exception noted, a care-worn, hungry-looking, clothed in his last-summer's suit individual, slowly assumed a perpendicular position and leaned upon the back of a bench in front of him. "How is it my friend," asked the minister, "that you are the only man in this congregation that is unable to meet his obligations?" "I publish a newspaper," he meekly replied, "and my brethren here who have just stood up are my subscribers and"—"let us pray," exclaimed the minister.

Legal Intelligence.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before the Lord Chief Justice and a Special Jury.)

SPURGIN V. RAGGETT AND SONS.

This was an action by the proprietor of an oyster bar at Carlton-bridge, Westbourne-park, against a firm of beer and stout merchants who occupy vaults in close proximity to the plaintiff's premises, to recover damages for a nuisance caused by the defendants' burning open coke fires in their vaults, which filled the plaintiff's premises with sulphurous fumes. The plaintiff also claimed an injunction.

Mr. McCall, Q.C., in opening the plaintiff's case, said that the defendants, who were the proprietors of a "far-famed nourishing stout," found it necessary in cold weather to raise the temperature of their vaults so as to keep the aforesaid stout in good condition. They found that the cheapest and quickest way of doing so was by burning coke fires in large open "cressets," or "devils," as he believed some people called them. The defendants' vaults were practically on the same level as the basement, and were under the forecourt, pavement, and roadway in front of the plaintiff's house. The result was that when the fires were lighted sulphurous fumes poured into plaintiff's house through certain openings in the wall between plaintiff's basement and the defendants' vaults, and made it impossible almost to breathe in the plaintiff's house. The whole of the mirrors were destroyed and the metal work in the house was corroded by the action of the sulphur, and through being obliged to have the windows always open the plaintiff contracted a severe cold, which led to an attack of influenza, followed by bronchitis.

Mr. Hansom, an architect, gave evidence as to the defective condition of the party wall, and said that there were several apertures through which fumes could have escaped into plaintiff's house. He had made certain tests, and found that a candle held near the ground in the hall of plaintiff's house would be blown out by a draught coming, as far as he could see, from the vaults. He found a deposit on the mirrors and metal work in the house. He should say the whole mischief came from the vaults.

Mr. Lionel Cooper, a Fellow of the Chemical Society, gave evidence as to the character of the noxious gases which entered the house from the vaults. He had tested the deposits left upon the mirrors, &c., and found them to be of a sulphurous nature. In his opinion the fumes would interfere with the enjoyment of life, and were of a highly dangerous character.

Dr. Owen Roberts, who attended the plaintiff in his illness, also spoke as to the sulphurous fumes in the house being injurious to health. He could not say that the influenza and bronchitis arose from them. The open windows were probably the cause of the attack.

Mr. Charles Spurgin, the plaintiff, said he was the lessee of the premises for 21 years from Christmas, 1890. In 1890 he complained, and the nuisance was abated. In February or March, 1893, he again complained, and again the nuisance was abated. The nuisance, however, began again in November, 1893, and continued until January 18 last, when he commenced this action. The fumes were worst at night and in very cold weather. He told the defendant they were killing him, and that he had lost all his energy. The fumes prevented his breathing, and when he woke up in the morning his eyes were dim and his mouth so screwed up that he could not eat. (Laughter.) A new piece of metal (produced) was spoilt in six days by the fumes. He had a plumber in 13 weeks constructing an aquarium, and then the fumes spoilt all his lichen. He was obliged to whitewash all his ceilings—they had not been done since 1890.

The Lord Chief Justice: Then it was quite time they were done again. (Laughter.)

Cross-examined by Mr. Moyses.—He had brought an action for nuisance against his next door neighbour, who kept a fried-fish shop, and claimed £800., but when the case was tried before Sir Henry Hawkins the jury found for the defendant. On that occasion he said the smell of the fried fish had made him ill and spoilt his appetite. (Laughter.) There were, however, points of law in that case. (Renewed laughter.) He had also complained to the vestry that there was a nuisance arising from the lavatory, which "caused a stench hitherto unaccounted for."

Mr. Donovan, a friend of the plaintiff's, said he called on him about three times a week, and had his throat tickled by the sulphurous fumes. They nearly choked him.

Mr. Allison, another friend, said he went to plaintiff's house to tea, and the fumes caught him by the throat.

Cross-examined.—He stayed there four hours having tea; but he left earlier than he would otherwise have done if there had been no fumes.

Evidence was given to the effect that it would probably cost between £85. and £90. to replace the 38 mirrors in the plaintiff's house which had been spoilt.

For the defence, Mr. Done, a surveyor, was called, and he stated that he saw nothing in the plaintiff's house that the London climate would not account for. (Laughter.) There was plenty of dirt, but he saw no sulphur crystals. He did not, however, look especially for them.

Cross-examined by Mr. McCall, Q.C.—He could not say that the fumes had not penetrated into the plaintiff's house from the defendants' vaults, although he did not think it likely. He was not told that "cressets" had been lighted in the vaults. He first examined the premises in October last. In his opinion the draught would be away from the plaintiff's premises and not towards them. The vaults were higher at the side nearest the plaintiff's house than at the other end.

At this stage counsel agreed to leave the matter in his Lordship's hands to say what ought to be done; and after they had seen him in his private room,

The Lord Chief Justice, in discharging the jury, said that the case had been settled on terms which would probably please neither party. The defects in the wall and the holes were to be made good, so that the coke was again used in the "cressets" plaintiff would not be inconvenienced.

The terms of the settlement were not made public.

(Before Mr. Justice Wills and Mr. Justice Wright.)

SMART AND SON V. WATTS.

The question in this case was whether the admission by a manager in a shop to an inspector under the Food and Drugs Act that an article sold was "margarine" does away with the necessity of having the article analysed and of taking the other steps under the Acts, so that the justices may convict the owner of the shop on the admission of his manager.

This was a case stated by the justices for the county of Middlesex on the hearing of a summons under two sections of the Margarine Act, 1887.—The appellants, provision dealers at Hendon, were summoned for having exposed for sale by retail margarine without having attached to each parcel thereof, or exposed in such manner as to be clearly visible to the purchaser, a label marked or printed in capital letters not less than 1½ in. square "margarine," and that, at the same time and place, the appellants sold margarine by retail without delivering the same to the purchaser in or with a paper wrapper on which was printed in capital letters not less than 1½ in. square "margarine." The two complaints were heard together. The evidence was this: On June 18 the inspector called at the appellants' shop at Hendon and saw butter exposed for sale on the counter. Mrs. Skillman came to serve him. The inspector asked for ¼ lb. of the butter, pointing to butter on which was a label "8." She served him, and he paid 2d. At the hearing he produced the article as served to him. The paper wrapper was of plain paper. There was no designation of what the article was either on the paper or the article. The article had been in a tub turned upside down on the counter. The inspector informed Mrs. Skillman who he was, and called her attention to the label. She said, "This is not butter; it is margarine." She said she was serving temporarily, as the manager was out. Mr. Skillman, the manager, was sent for, and then came. He said the article was margarine. In cross-examination the inspector stated that he did not give notice that the article was purchased for analysis. He had not submitted it for analysis because Mr. Skillman told him it was margarine. After the purchase he did not think it necessary to go to that expense. The tub had the word "margarine" on it, but it was upside down and not readable. For the appellants it was contended—(1) That the statements of Mr. and Mrs. Skillman that the article sold was margarine were not made in the presence or hearing of the appellants, and consequently were not admissible as evidence, and, therefore, that there was no evidence that the article was margarine; (2) that the proceedings under the Margarine Act, 1887, section 12, should be the same as those prescribed by the Sale of Food and Drugs Act, 1875, 38 and 39 Vic. cap. 63; that under section 14 of that Act the purchaser should have notified his intention to have the article analysed, and should have divided it into three parts, leaving one such part with the seller or his agent; that under sections 20 and 21 of the Sale of Food and Drugs Act the complainant should have had one portion of the article analysed, and should have produced the certificate of the analyst as to the result of such analysis; that such notification, division, and analysis were conditions precedent to a prosecution, and that, the same not having been made, the prosecution must fail. The justices, after an adjournment to consider, convicted the appellants and imposed a fine. They thought there was evidence, and found, as a fact, that the substance sold was margarine, and that no label was attached and no proper paper wrapper delivered.

Mr. Bonsey said that section 12 of the Margarine Act, 1887, applied the provisions of the Food and Drugs Act. It had been decided that

sis was a condition precedent in the proceedings under the Food Drugs Act—"Barnes v. Chipp" (3 Ex. D.), and "Parsons v. Ingham Dairy Company" (9 Q.B.D., 172.) It was therefore a condition precedent in the case of margarine proceedings. A shopman did not be allowed by an admission to convict his master of a criminal offence—"Brown v. Foote" (66 L.T.) It was not within the scope of a servant's authority.

Earle submitted that there was ample evidence upon which the court might convict, for, besides the admission by the manager of its margarine, they had the article before them, and, further, the tub in which the article was taken was marked "margarine." No evidence to the contrary was given. If an analysis was held to be necessary, it would be a hardship on a defendant who did not dispute the fact of the sale of margarine that he should, if convicted, have to bear the cost of an unnecessary analysis.

The Court allowed the appeal. Justice Wills said he was sorry, under the circumstances, that the conviction must be set aside. Section 12 of the Act of 1887 was incorporated in the provisions of the Act of 1875, and rendered necessary the formalities given in that Act. Those provisions had not been followed here, and the conviction therefore could not stand, although it might be regrettable that needless expense might have to be incurred.

Justice Wright concurred.

SUPREME COURT OF JUDICATURE.

COURT OF APPEAL.

(Before Lord Justice Lindley and Lord Justice Smith.)

KNOWLES AND CO. V. JOHN BENNETT AND SONS.

A case, which was heard on Thursday week, was an appeal by John Bennett and Sons, calico printers, of Manchester, against the decision of Vice-Chancellor Robinson in the proceedings instituted against them by Messrs. S. Knowles and Company, Limited, also printers, of Manchester. Messrs. Knowles obtained possession of a shawl, and reproduced the pattern of it in printed goods. The shawls sold very readily in the Eastern markets, but eventually sales fell off, and an investigation into the cause showed that a merchant named Bigio, who also carried on business in Manchester, was shipping an almost identical though cheaper shawl to the markets. They at once began proceedings, on the ground that the cheaper shawl which was printed by Messrs. Bennett was an imitation of their pattern. The Vice-Chancellor came to the conclusion that there had been a deliberate attempt to copy a portion of the pattern registered by Messrs. Knowles. Lord Justice Lindley, in giving judgment, said he was not going to reverse the Vice-Chancellor's decision.

The questions raised were perhaps not easy to decide. The shawls had unquestionably brought out a design which, so far as the pattern on calico went, was absolutely new. The idea was taken from the shawl, and it was found impossible to reproduce an exact imitation of the silk without the aid of covering rollers and without obtaining the stitching effect. The design copied from the woven shawl did not look well in colours without the stitching effect, and the stitching effect was produced accordingly. But any stitching effect did not do. He was not prepared to say off-hand that the decision of the Vice-Chancellor was wrong; on the contrary, his impression was that the evidence he was right. What the plaintiffs had done was to register certain designs in class fourteen, and when they looked at the design it was seen that the stitching effect was an important part of the design. In his opinion the design was a fit subject for registration. Lord Justice Smith concurred. The appeal was dismissed, with costs.

CHROMIUM FLUORIDE IN WOOL DYEING.

FEW years ago there was introduced to the notice of wool dyers a new mordanting material in the shape of the fluoride of chromium, known commercially as fluoride of chrome, in the form of a powder fairly readily soluble in water. This product has met with considerable favour from wool dyers, although the advantages it offers over bichromate of potash should have caused it to become used than what it has been. Probably the prejudice which all dyers unfortunately have against anything new has been against its use. Of course, its being rather more expensive than the older material of potash may have been against it; but as the difference cannot be large its advantages over bichrome ought to counterbalance this.

Fluoride can be employed in the dyeing of wool with certain dyes where bichrome would be perfectly unsuitable. Such is the case with diamine fast red F, Titan yellow Y, Emin red, benzo fast red, and others. These colouring-matters are first dyed on wool in usual acid or neutral baths; then the dyed goods are boiled

for half an hour longer, in a fresh bath, with a small amount of fluoride of chrome (2 to 3%), when shades are obtained of great fastness to light, air, and milling. In the case of diamine fast red F the fastness of the reds so obtained is fully equal to those dyed with the alizarine reds; while in that of Titan yellow the fastness is fully equal, if not superior, to that of alizarine yellows. With such dyes bichrome is not available; owing to its oxidising properties it acts upon and more or less destroys the colour-matter on the fibre.

In dyeing with chrome on wool the main object is to bring about the deposition of green hydroxide of chrome on the wool, except in certain cases—in dyeing logwood blacks, for instance, where some chromic acid should be fixed on the wool. When bichrome is used alone this deposition does not take place to any great extent, and it becomes necessary to add sulphuric acid, oxalic acid, or tartar to the bath. In the first case, not only is hydroxide of chrome deposited, but chromic acid also, and this exerts a deleterious effect on some dyestuffs—anthracene blue, for instance. In the last two cases this effect does not occur, and hydroxide alone is deposited. In any case, however, the final effect is only obtained after a prolonged boiling. At first chromic acid is deposited, and this gradually changes into hydroxide, the change being indicated by a change of colour in the wool, from yellow to green. The treatment should always be prolonged until this takes place. Usually there are employed from 3 to 4% of tartar, or oxalic acid; very deep shades may take 5% of bichrome. The whole of the bichrome is not used, about half remaining in the mordanting bath.

In the case of dyeing with fluoride of chrome the hydroxide is deposited immediately on the wool. Hence in using this substance the treatment need not be so prolonged. Thereby the wool is not liable to become felted or tangled, as it may be under a longer treatment. Less fluoride (from two to three per cent.) is required, with half the quantity of oxalic acid. One hour's boiling is quite sufficient for the darkest shades, while if pale tints only are being dyed half-an-hour is sufficient—a feature of no little value as enabling pale tints to be dyed with alizarines of a more uniform shade than is possible with bichrome-mordanted wool; for in the latter case the wool contains much chromic acid, which, on the wool being allowed to lie about, as may happen, is changed by the action of light and air, in those places to which they may have access, into hydroxide, and the dyeing, therefore, is liable to be uneven. Wool is much softer when mordanted with fluoride of chrome than when mordanted with bichrome, owing to the absence of any oxidising influence on the wool.

Mordanting with fluoride proceeds better in old than in the new baths, and so the mordanting baths may be retained for constant use, adding about three-fourths of the original quantities of the fluoride and oxalic acid for each successive lot of wool.

On the whole, fluoride of chrome gives better results with the alizarine dyes than does bichrome, and with some—alizarine Bordeaux, alizarine cyanines, and anthracene blues—it offers some advantages in fuller shades and brighter tones. Especially is this the case with the last-named dyes. Then, in the case of diamine fast red F, anthracene yellows C and BN, Titan yellows Y and R, Clayton cloth red, Victoria violet, fast blue, and anthracite black, the after-chroming with fluoride is of great value in rendering them fast to light, as before mentioned. Besides which, indigo shades are not affected with fluorine as they are with bichrome.

Taking it all round, wool dyers would do well to give fluoride of chrome a good trial, when they will probably find that the difference in cost between fluoride and bichrome is not very great when every economy is exercised, while this extra cost is compensated for by the greater range of colours and shades that can be dyed with it.—*Textile Mercury*.

SIR F. POLLOCK ON THE LATE DR. TYNDALL.—Sir Frederick Pollock lectured at Toynbee Hall on Saturday week on "Tyndall as Worker and Teacher." He explained that he had known Tyndall from boyhood, which enabled him to give some personal impressions. Sir Frederick gave an outline of a life which, he said, on the whole was uneventful, and proceeded to describe his work as an investigator in physical science. Tyndall, prepared for study by a mathematical training, on coming to London became attached to the Royal Institution, which was the scene of his subsequent scientific work. Tyndall was a man of abundant activity, as was shown by his ardent mountaineering, by which he laid open several new regions in the Alps. Having referred to Tyndall's speculations as to spontaneous generation, the lecturer said Tyndall always went where the facts led him. It was his aim that people should have their due, and he was always fighting for some one or trying to bring some person forward to whom the world had not been just. (*C.T.J.*, 348, p. 42.) Many misconceptions, he thought, were formed of Tyndall's opinions from the Belfast address. The scale was now turned, and it seemed extraordinary that such excitement should have been created by the discussion his address occasioned twenty years ago.

AGRICULTURAL PESTS IN 1894.

MISS ORMEROD, late entomologist of the Royal Agricultural Society, writing to the *Times*, says:—As at the close of each year it seems to some degree serviceable to give a report of the insect pests which have been most noticed during the preceding season, I now beg again to submit a list of the most important kinds regarding which enquiries or communications have been sent me from the beginning of January up to date of writing. These I have classed as well as their natures permit (some being general feeders) under headings of the crops in connection with which they were most reported, and, to save space, have for the most part only given the common English name, more especially as in my annual report, now in preparation, the most important of these attacks are entered upon with names in full, and also date and name and locality of sender. Enquiries regarding 140 or upwards of 140 species of insects were sent to me for identification and advice, including in these the attacks usually classed among insects allies, as red spiders, false wireworms, and the like; and from the daily entries in my letter-books of dates of receipts and replies reference can be made where needed. Taking, first, the chief infestations which attack some or all of our cruciferous crops:—

Turnip, Cabbage, and Mustard—We had presence of turnip flea-beetle; diamond-back moths; turnip and cabbage gall weevil; turnip-seed weevil; *smynthorus*, or spring-tails, a rarely observed attack; turnip mud-beetle, of which we have recently traced the maggots as feeding in the crowns of turnips; red maggot, at base of turnip shoot; cabbage-root fly-maggots; snowy fly; mustard beetle; and a minute-weevil, the *centorhynchus contractus*, which does harm to the sprouting mustard, as well as young turnips. Surface-caterpillars, often known as "turnip grubs," were not much reported.

Corn and Grass—At grass—antler moth-caterpillars at localities in seven counties of the south-west of Scotland, with three distinct kinds of parasitic attack; grain aphid, on grass; daddy-longlegs grubs; also haystack mites to a serious extent locally. At corn—gout fly, at barley; frit fly, at oats; Hessian fly in a few places, and wheat-bulb fly maggot in the young wheat plant; also the caterpillar of a small noctuid moth in young wheat plant, a previously unobserved attack, and utterly ruinous in the single locality where it was found; corn thrips, plentiful where looked for; tulip-root (eelworm disease), present in oat plants; and in the districts where rosechafers and their grubs did much harm in 1893, these were again reported. These grubs are often mistaken for grubs of cockchafers in young s'ate.

Amongst colonial infestations, or those injurious to British owners in foreign countries, were more especially inquiries regarding the mosquito blight on tea plantations in the East Indies; sugar-cane variously attacked, as by beetle-grubs in Queensland, and mole crickets in St. Lucia, West Indies; orange scale on the trees of an English grower in Portugal; a grass-attack (not yet identified) in the Azores; and an attack of unusual interest, of which details and specimens were placed in my hands, caused by grubs of lamellicorn or chafer beetles, and extending over no less than the enormous area of about 40,000 acres of the fenced-in pasture-land of the South American Land Company in the Argentine territories of South America.

FOOD COLOURS AND FOOD PRESERVATIVES.

By HENRY LEFFMAN, A.M., M.D.

TO discuss this important topic in all its bearings would require a volume. I wish to present here only some facts as regards the present methods and the possible sanitary results. The artificial colouring of food has been practised for a long period, and it is probable that in much earlier times, when the effects of mineral colours were almost unknown, and the supervision of the composition of food far less developed than at present, the damage done to health by the reckless use of colours was very great. The constant attacks made by the sanitary authorities on the use of mineral substances in food have tended to decrease the use of them, and it is comparatively rarely that we find arsenic, copper, or lead colours in food. Among the substances long used and commonly regarded as harmless are the vegetable colours, indigo, turmeric, annatto, and logwood and the animal colour, cochineal. While there is but little positive physiologic or clinic evidence to show that the continued use of these bodies in small amounts is harmless, yet it seems to be generally held that they may be employed, provided the object is not to conceal inferiority or adulteration. Thus, there is little opposition to the colouring of candy with cochineal, since everyone knows that red candy must be coloured with something, but there is objection to the imitation of wine colour by adding cochineal to diluted alcohol, since the purpose is to deceive as to nature of the article.

Almost all the old methods have, however, been overthrown by the remarkable progress in the production of artificial colours, whose name is legion, for they are many.

Of these colours it may be said that, fortunately, they appear to be without appreciable toxic qualities, except, perhaps, in large and repeated doses. Their distinct character, especially their high tinctorial power, precludes the possibility of their being taken by mistake, and they are not likely to have cumulative power. An incidental danger from their use arises from the presence of poisonous mineral matters, either accidentally introduced in the manufacture or purposely added in order to enhance the brilliancy or permanence of the article. Thus, fuchsin often contains distinct amounts of arsenic, and I have found appreciable traces of copper in every sample of Bismarck brown I have tested. Some colours are sold in definite combination with zinc chloride. All such mineral matter will have injurious action, and it is important that anyone who uses colours in food should ascertain the freedom from such impurities. Some confectioners do this, but many use what the dealers offer, without any thought of the effects. We owe to Theodore Weyl, of Berlin, our most exact knowledge of the effects of long-continued use of the coal-tar colours, and his results indicate that a few colours, notably some of the yellows, are poisonous. It must be borne in mind, however, that, except as to some almost negative experiences in manufacturing establishments, all information as to the toxic action of these bodies is drawn from experiments on lower animals, and there is uncertainty in carrying inferences from these to the human system.

I have alluded above to the practice of using colours to conceal the nature or quality of goods, and in this phase, of course, the wholesomeness of the colour is but a part of the question. Whether hurtful or not, the sanitary authorities ought to be empowered to prohibit such uses. Among the foods largely coloured with a view to enhance their saleability, are milk and milk products. The community at large tends to regard a rich yellow tint as evidence of good quality in these articles, and dealers are not slow to take advantage of such opinions. A colour long used by dairymen and milk purveyors is annatto. I think the consensus of opinion is that this is not injurious. It is said that some specimens of annatto are prepared with fermented urine, but this is doubtful, and there are certainly brands which are free from this taint. It is a vegetable colour of considerable tinctorial power. Associated with turmeric it is now found in several prepared "butter," "milk," and "cheese" colours. The solution is usually obtained by the use of some fixed oil (cottonseed or olive), or if it be desired to have a watery solution, by the use of sodium carbonate. The oily liquids are added especially for use with butter and cheese, the watery solutions are suitable for milk as well. I have experimented with about half a dozen of the commercial preparations. The mixture of colours employed renders the analyses uncertain, but it is evident that, as noted above, annatto and turmeric are the favourite ingredients. Methyl orange is, however, also used. The following formulae give a good idea of the nature of these preparations:—

(1)	Annatto seed, bruised..	..	..	..	..	10
	Turmeric ..	..	..	..	..	3
	Ammonium carbonate ..	..	..	..	..	1
	Cottonseed oil ..	..	..	..	..	75
	Lard ..	..	..	..	..	10
(2)	Extract of annatto ..	..	..	..	..	10 oz.
	Turmeric ..	..	..	..	..	5 "
	Logwood chips ..	..	..	..	..	2 1/2 "
	Cotton-seed oil ..	..	..	..	..	1 gal.

The detection of annatto colour in milk is easy. The sample is mixed with a little baking soda and a piece of unsized paper partly immersed and allowed to remain for a few hours. The immersed part becomes tinted orange. For the detection of methyl orange or other coal-tar colours in milk, clean undyed wool should be used, the sample being previously mixed with a little ammonia.

A solution of caramel is used as a milk colour. Its detection is difficult.

Concerning food preservatives, we find almost as great a lack of facts as with colours. We have not so large a list to consider, because although many preservative bodies are known, some are too costly or too characteristic in colour, taste, or smell, and others are so well known as dangerous that the most unscrupulous persons would not use them. Among the preservatives which are available for addition to food, we find common salt, potassium nitrate (nitre), various sulphites, salicylic acid, benzoic acid, sodium benzoate, boric acid, borax, and baking soda. Salt and nitre are used for meats, but it will not be necessary to discuss them here. Salicylic acid and borax have been of late years widely used, especially for fermentable articles, such as beer, milk, and preserved fruits. Sodium benzoate has also a fair use. These articles are sold under various names, such as "preservative," "conservative," "rex magnus," which give no clue to the nature of the body. I examined lately a series of five of these preparations put up by the same firm. A preservative for cider was found to be salicylic acid; a preservative for meat and milk was found to be borax. Another sample contained salt and baking soda. The preparations were highly recommended as harmless and efficient, and sold, of course, at higher prices than they could be obtained for under their proper names. I know from conversation

with dairymen that a milk preservative consisting of borax is largely used to keep milk without the aid of ice.

When the question of propriety of the use of those articles is discussed, the sanitary chemist is easily put on the defensive by the question: "Do you know wherein these bodies are harmful?" It must be confessed that he has only limited data available for reply. It is known that some of these bodies interfere with digestion. Salicylic acid, for instance, prevents the digestion of starch, but boric acid does not seem to do this. It was long shown that borax interferes somewhat with peptic digestion, but this is probably by neutralising the acid of the gastric juice. Nevertheless, we must decide, I think, against the general use of food preservatives, for the following reasons:—

We have no knowledge as to the effect of the long-continued use of small doses, and it is an unwarrantable assumption that, because we have not observed harm, it does not occur.

Processes of digestion are allied to processes of decomposition, in so far that the latter are frequently preceded by transformation under the influence of ferments. We may infer, therefore, that whatever prevents putrefaction must, at least, delay digestion. This, as noted above, has been actually shown with regard to some preservatives.

In many forms of food the use of preservatives will encourage negligence in the processes of manufacture, or permit the use of inferior or slightly decomposed materials.

The methods of preservation are not wholly understood, and there is a great temptation to use a large amount of the preservative to ensure success.

As long as the sale of such articles, under proprietary names, continues, there is no guarantee as to what may be used. A dealer may to-day sell salicylic acid under the title "anti-spoil," and to-morrow may substitute some even more dangerous body, if it be cheaper and, at least, equally efficient.

It seems, then, that the use of these preservatives in food should be disallowed. At any rate, those using them should be obliged to indicate on the package the amount and nature of the material used, and it would also be in the interest of public policy that proprietary or copyright privileges should be withheld from all manufactures which are intended for secretly modifying foods.—*The Dietetic and Hygienic Gazette.*

THE GAS SUPPLY OF LONDON AND LEEDS

LONDON.

MR. W. J. Dibdin's report for week ending Dec. 15th, 1894, is summarised below. On five occasions the illuminating power was found to be below the standard, the deficiency varying from '1 to '3 candles.

Company.	No. of districts tested.	Illuminating power (in stand. sperm candles).	Sulphur. Grains in 100 cb. ft.	Ammonia. Grains in 100 cb. ft.	Sulphuretted hydrogen.
		Mean average.	Mean average.	Mean average.	
Gas Light and Coke Co.	14	16'3	11'9	0'3	Nil.
South Metropolitan Gas Co.	6	16'5	12'9	0'2	Nil.
Commercial Gas Co.	2	16'3	6'8	0'6	Nil.

The standard gas supplied by these companies should have an illuminating power of 16 sperm candles, and contain not more than 22 grains of sulphur and 4 grains of ammonia per 100 cub. ft. of gas, on an average of three days with a pressure of one inch between sunset and midnight, and six-tenths of an inch between midnight and sunset.

LEEDS.

According to the report of Mr. T. Fairley, F.I.C., gas examiner for Leeds, the total proportion of sulphur contained in the Leeds gas during the month ended December, 1894, has averaged 16'88 grains per 100 cubic feet. The following are the results of tests made at the Works in grains per 100 cubic feet:—

Place.	Date when Tests were made.		Total Sulphur.	Ammonia.	Carbonic Acid.	
	Nov. 1894.	Dec. 1894.			Weight.	Volume.
Meadow Lane....	17, 22, 26.	5, 11.	11'03	1'31	57'05	'07
New Wortley....	13, 20, 29.	7, 10.	20'64	4'36	57'05	'07
York Street....	15, 21, 28.	8, 12.	12'86	2'12	57'05	'07
Average at Works	..	..	16'88	3'00	57'05	'07
Average at East Parade.....	..	..	16'67	3'81	65'20	'08

During the month the average illuminating power of the Leeds Gas tested at 17, East Parade, the tests being calculated to a uniform consumption of 5 feet per hour, and corrected for variations in temperature and pressure to a temperature of 60° Fahr. and a barometric pressure of 30 inches, has been in standard candles (burning 120 grains of sperm per hour):—Standard argand, 24 hole, 17'8; and standard batswing, 18'3.

THE COLOURING OF SOAP AND CANDLES.

THE problem of giving soaps and candles a beautiful colour, at a low extra cost, has become quite an important one at the present day, the consumer in general giving preference to the coloured goods.

The solution of this task, which is now a familiar one to the manufacturers of soap, and especially of toilet soaps, is a much more difficult one to the candle maker; for while in coloured soaps the requirements are limited to a beautiful colour that will remain unchanged on exposure and not cause stains in washing, candles make the additional demand that the colour must not interfere with the burning of the candle.

The latter point adds a material difficulty to the colouring of stearine and wax candles.

Regarding soap, the first point to be observed is to select the proper shade of the flower corresponding with the perfume used; for instance, an almond soap is left white, rose soap is coloured pink or red, mignonette green, etc.

The colours from which the soapmaker may select are exceedingly numerous, for not only are most of the aniline colours adapted for his purpose, but also a very great number of mineral colours. Until a comparatively recent time the latter were probably exclusively employed, but the advance in the tar colour industry in later years has brought about a not inconsiderable change in this respect. A very prominent advantage of the mineral colours is their stability, i.e., not being changed or in any way affected on the exposure to light. This advantage, however, is offset in many cases by the wonderfully beautiful effect of numerous aniline colours, and by the more difficult method of application in the case of the former. The specific gravity of mineral colours being rather high in most cases, they will naturally tend to settle towards the bottom, necessitating crutching of the soap until it is too thick to drop the colour. For mottled soap, however, cinnabar (vermilion) and ultramarine are still largely employed.

For transparent soap, of course, mineral colours are not applicable, as they would detract from their transparency; for milled soap, on the other hand, they are very well adapted, as also for cold-made soaps which require crutching anyway until a sufficient consistency is obtained to keep the colouring material suspended.

A notable disadvantage in the use of aniline colours, besides their sensitiveness to the action of light, is the fact that a majority of them is affected and partly destroyed by the action of alkali. A few of them are proof against a small excess of lye, and these may be used with a good effect. Certain firms have made a specialty of manufacturing colours answering the peculiar requirements of soap and being very easy of application, as they are simply dissolved in boiling water and stirring the solution into the soap. To some colours a little weak lye is added; others are mixed with a little oil before they are added to the soap.

For a soluble red colour there were formerly used alkanet and cochineal; at present they have been displaced to a great extent, on account of their high cost, by "fuchsin" which is very cheap and of remarkable beauty. A very small amount of it suffices for an intense colour, nor is a large proportion desirable, as the soap would then stain. Very delicate tints are also produced by the phthalein colours, of which those named rosbengal, rhodamin, and eosin are most commonly used. These colours, when dissolved, have a green fluorescence which heightens their beautiful effect.

There are also a number of the azo dyes which are suitable for soaps, and these, as well as the phthalein colours, are used principally for transparent soaps. For opaque soaps both aniline and mineral reds are used, among the latter being cinnabar, chrome red, and iron oxide. Chrome red is a basic chromate of lead which is now much used in place of vermilion, but as it becomes black on exposure to an atmosphere containing even traces only of sulphuretted hydrogen, it is not especially adapted for soap. Cinnabar gives a bright colour, but it is high in price. Iron oxide, known in the trade as colcothar, caput mortuum, etc., is only used for cheap soaps.

For yellow there are also a considerable number of colours. Among the natural colours there are prominent: Saffron, orlean, curcuma (turmeric), and carmel (sugar colour); the first-named of these is now hardly used, owing to its high cost. Of the yellow aniline colours special mention is due to picric acid (trinitrophenol), martius yellow, naphthol yellow, the yellow azo dyes, and auramin. If it is an orange that is wanted, a trace of fuchsin (red) may be added to the yellow colours named. The use of some unbleached palm oil with the stock answers a similar purpose, but the colour fades on exposure. A mineral yellow is chrome yellow (chromate of lead) which has the same advantages and disadvantages as chrome red.

DIVIDENDS.—*London Oil Storage*: The directors of this Company have declared an interim dividend of 5s. per share, payable forthwith. *Elmore's Patent Copper Depositing Company*: The accounts for the year ended June 30 show a loss of £10,435, thus increasing the debit balance to £31,953.

Trade Notes.

SUBSIDENCE IN THE CHESHIRE SALT DISTRICT.—A serious subsidence has occurred at Marton, in the Cheshire salt district, on the farm of Mr. Moreton, of Marton. A large lake was formed some years ago by subsidence. Six hundred additional square yards of land have now gone down, closing a public footpath and entailing serious losses on the landowner and tenant.

MANGANESE IN FRANCE.—The history of the opening up of the manganese deposits in France, referred to in the article on "Manganese in France" in our issue 395, is likely to be of interest to our readers. It appears that the value of the mine referred to at St. Girons was unknown to M. Segalas until M. Goubeau, mining engineer, of Luzenac, made his acquaintance and sent Messrs. G. G. Blackwell, Sons, and Co. a small piece of the ore for my valuation and report. The consequence was that they sent an order for a cargo, and then for another, and so on. The firm, therefore, was the medium of bringing this ore into the market, being the first to receive shipments of it. It was subsequently that Mr. Simon became connected with the matter by buying up the interests of a previous party.

BURYING THE STEEL.—A curious story is told of the War Department. Some time since, it is said, a workman was engaged in casting metal for the manufacture of ordnance at Woolwich Arsenal, when he lost his balance and fell into a huge cauldron containing twelve tons of molten steel. The metal was at white heat, and of course the unfortunate man was utterly consumed in less time than it has taken to tell it. The War Department authorities held a conference, and decided not to profane the dead by using the steel in the manufacture of ordnance, and that enormous mass of metal was actually interred, and a Church of England clergyman read the services for the dead over it. We shall hear next, perhaps, of the burying of a batch of "caustic" when a somewhat similar accident occurs in a chemical works.

SMOKE PROSECUTIONS.—At the City Police Court, Manchester, last week, before Messrs. Shann and Caulfield, the following persons were summoned under the Public Health Act for permitting the emission of black smoke from the chimneys of their premises, and were dealt with as follows:—Henry Shepley Booth, Lower Mosley-street, trading as H. S. Booth and Co., fined 10s. and costs; James Neill, Cumberland-street, fined 21s. and costs; Kenyon Barnes, Ellesmere-street, trading as Kenyon Barnes and Company, order of abatement granted; John Hetherington and Sons, Limited, Pollard-street, Great Ancoats-street, order of abatement granted; George Houghton, Brook-street, order of abatement granted; David Moseley, Chapel-field-lane, Ardwick, trading as D. Moseley and Son, order of abatement granted; C. H. Wilson and Company, Limited, Monsall-road, fined 10s. 6d. and costs; The Imperial Patent Wadding Company, Limited, Sackville-street, order of abatement granted.

RATIONAL HEATING OF RAILWAY CARRIAGES.—The Caledonian Railway Company is about to introduce the American system of heating railway carriages, the main feature of which is a storage heater placed underneath the carriage seat. The entire train is fitted with a feeding tube, from which live steam from the locomotive is passed through at a pressure of thirty-five pounds. The storage heater is partially filled with a solution of salt water or acetate of soda. Steam is passed through from the locomotive for some minutes, and when the whole of the tubing has been charged the valve is closed and the storing of the heat begins in the solution chamber. The invention, which is adapted from the Pullman system in use in the United States, is said to be very economical, fifteen minutes of steam pressure at thirty-five pounds resulting in sufficient heat to keep an entire train comfortably warmed for about four hours. It is so adapted, too, that passengers in any part of the train can regulate or shut off the heat as they may desire.

THE TREATMENT OF SLIMES.—For several months past some very important experiments have been conducted at the New Primrose mine by Mr. W. Bettel, consulting chemist and metallurgist to the company, in the treatment of slimes. Mr. Bettel constructed a small plant at his own expense, and, as the result of actual working, claims that he has successfully solved the problem of winning the larger percentage of the gold contents of hitherto untreatable and low-grade slimes, as they come from the mill, on a commercial basis. Mr. Bettel has applied for a patent, for the process experiments have shown that the recovery has been from 79 to 91 per cent. of the gold contents of the slimes treated. If on a large scale 60 or even 50 per cent. of the gold in slimes, which in a large number of cases are now practically running to waste, can be recovered, the discovery will turn out to be one of the most important that has been made since the introduction of cyanide in the reduction of tailings. It is claimed that 2 dwt. slimes can be treated on a moderately large scale without loss, and 2½ dwt. slimes at an actual commercial profit. As it is only with a few mines that the slimes range as low as 2 dwt., as a rule being of much higher grade, the importance of the discovery will be recognised.

CHANGE OF ADDRESS.—We are informed that Mr. C. Harzer, the sole representative of Dehne's filter presses and pumps in the United Kingdom, has changed his address from Billiter-buildings to 79½, Gracechurch-street, London.

ADULTERATED MILK.—At the City Police Court, Manchester, last week, Isaac Dalton, farmer, Birch Vale, Derbyshire, was fined £10. and costs for consigning to a Manchester dealer, on the 24th of November, milk adulterated to the extent of ten and five per cent. respectively. The defendant accounted for the adulteration by putting it down to an accident in the cooling trough.

COLLAPSE OF A VITRIOL CHAMBER.—The heavy gale of last Saturday had very serious consequences at the works of the Sheffield Chemical Company, situated in Washford-road, close to the river Don. A vitriol chamber of 35,000 cubic feet capacity collapsed entirely, and about 40 tons of acid ran away into the river. The site seems to have been an unfortunate one, as this chamber's predecessor suffered the same fate in 1873.

DILUTED VINEGAR.—At the Thames Police-court, London, last week, William Meachem, of Three Colts-street, Limehouse, appeared to answer an adjourned summons taken out at the instance of the Limehouse District Board of Works, for selling vinegar deficient in acetic acid to the extent of 40 per cent. Dr. Rogers was called for the prosecution, and, in answer to Mr. Young, who appeared for the Board of Works, said he was not able to say there had been an abstraction of acetic acid, but the sample of vinegar contained 40 per cent. less than the limit allowed by the Society of Public Analysts. He knew of no other way than by chemical process that acetic acid could be abstracted from vinegar, and Mr. Dickinson said he was prepared to hold as a matter of law that dilution with water was not abstraction under the 9th section of the Act, and he contended that on that ground the summons must fail. If the certificate had been in a different form Mr. Young might have proceeded under the 6th section. Addition to anything did not make subtraction. Mr. Young asked whether his worship would be willing to grant a case if he asked for one. Mr. Dickinson said he would not be justified in granting a case, as the English language was very plain. The Board of Works would have to pay the defendant £1. 1s. costs.

GROWTH OF CHICORY IN BELGIUM.—The cultivation of chicory-root now occupies (says the *Board of Trade Journal*) a very important position in Flanders. According to the United States Consul at Ghent, the present large trade in the commodity owes its beginning to the native demand for a substitute for coffee. Not only is chicory much cheaper for home consumption, but the doctors have recommended it as a very healthy drink. It is said to be specially beneficial to persons suffering from disorders of the stomach. Belgians use it almost universally for a mixture with coffee, as they consider that the result is a greatly improved flavour. The chicory-root grown in Western Belgium is considered to be superior to the French or German product. The conditions of its growth, and the facilities for its preparation, are in this country most favourable. A sandy soil and an abundance of water for properly washing the root are essential. Both these requirements pre-eminently exist in West Flanders. A secondary quality grows in the Walloon provinces. Its inferiority consists in the fact that much earth clings to the root, it being impossible to thoroughly wash it owing to the lack of water supply. The yearly chicory crop of Belgium amounts to from 280,000 to 350,000 tons.

Market Reports.

LIVERPOOL MINERAL MARKET.

In consequence of the holidays our market has ruled very quiet, and there are few transactions to report. Manganese is unaltered at last figures for lump; ground, £6. to £12. 10s. per ton. Manganiferous ore, 15s. 6d. to 17s. 6d. per ton, c.i.f., in cargoes. Bauxite, Irish Hill Lump, is in particular favour, and brings full prices: 20s. for first quality, 16s. for seconds, and 12s. for thirds, f.o.b. Owing to the increased demand for this article for the manufacture of aluminium and bauxite bricks, an early advance is expected. Chrome ore is scarce, both for spot and forward delivery, whilst the demand is strong and the prices firm at 65s. to 70s. for 40% and 105s. to 110s. for 50% ore. French chalk: "Angel White" and "Gold Medal" Brands are steady at 75s. to 110s. Barytes: carbonate of the best quality is scarce, whilst the demand is steady. Sulphate is in increased inquiry for the finest qualities. Wolfram and scheelite are unchanged. Ferro tungsten, 1s. 9d. per lb. for metal containing 80% tungsten. Plumbago unchanged: for foundry purposes, £5. to £6.; better qualities, £8. to £10. per ton. Irish moss: finest quality, £12. 10s.; medium, £10.; common, £8. per ton. Arsenic is very firm at £15.

MISCELLANEOUS CHEMICAL MARKET.

There is very little alteration in the position of the staple products of the alkali trade. Generally speaking, there is a firmer tone and more active buying, both for export and home account. There are no changes to report in prices during the week, current quotations being: For caustic soda, 77%, £10. per ton, f.o.b. Tyne; f.o.b. Liverpool, 74%, £9. 2s. 6d.; 70%, £8. 2s. 6d.; 60%, £7. 2s. 6d., 10-ton lots and upwards. Alkali, 58%, £3. 7s. 6d. to £3. 10s., bags, makers' works. Leblanc soda ash, rd. to 1½d. per degree, f.o.b. Soda crystals still quiet. Chlorate of potash, 5¼d. per lb. lowest. Chlorate of soda, 7½d. per lb. Bleaching powder is nominally unchanged, but some re-sale lots have been offered at slightly lower figures; price at makers' works, £7. 5s. per ton. Sulphate of copper still continues firm. Potash, caustic, and carbonate are selling freely, both prompt and forward, and prices are firm. White powdered arsenic is still very scarce and dear; nearest price, £14. 5s. to £14. 10s., Garston, etc. Brown and grey acetates of lime are freely offered, but without further decline in price. Other acetates unchanged. In carbolic acid, crystals and liquid, there is no improvement. Yellow prussiate of potash rather quiet at rd. to 10¼d. per lb. Trade generally in chemicals continues very quiet in all districts.

TAR AND AMMONIA PRODUCTS.

The Christmas holidays have, as usual, had an adverse result on business, and taken with a flat market the outlook does not appear encouraging. It is quite certain that benzol at 1s. per gallon does not pay the producer, and it is only this cheapness that will conduce to its employment in any new direction. Carbolic acids are quiet; it may be their sales are interfered with by the many quack nostrums now so much advertised. Creosote and anthracene are without change, and pitch is maintained at the old level.

Sulphate of ammonia is still weak, but the present low level of prices is not expected to continue. It is rumoured that several small purchasing rings have been formed to acquire as much forward sulphate as it is possible to secure at the present low level of prices, so as to depress values until early spring, but we opine they have not been very successful. The southern makers are looking forward to Leith as a probable indication of what spring prices are likely to be. Stocks are not inordinately heavy, and foreign consumption is on the increase.

THE COPPER MARKET.

Messrs. Harrington and Co., in their fortnightly report, dated Liverpool, Dec. 18th, 1894, state:—

Chili Charters for the past fortnight are cabled as 1,400 tons, making the total since 31st December last 20,350 tons, against 20,450 tons same time last year. Exchange, 13¼d.

Since our last we have had a firmer market for G.m.b.'s, chiefly owing to presumed buying on American account, and values quickly rose from £39. 16s. 3d. cash and £40. 3s. 9d., till they touched £41. 2s. 6d. and £41. 10s. respectively on the 11th inst., this advance was not maintained, and we fell back to £40. 12s. 6d. cash and £41. three months, closing firmer to-day with buyers at £40. 17s. 6d. and £41. 5s. respectively.

The total stocks in Liverpool, Swansea, London, and Havre are 49,276 tons, against 49,645 tons on the 4th inst., showing a decrease of 369 tons for the fortnight. The stocks include about 1,000 tons of copper sold, but not yet delivered to smelters. The visible supply for the fortnight is 52,741 tons, against 52,398 tons on the 4th inst., showing an increase of 343 tons. Refined and manufactured sorts are firm. Quotations being:—Tough cake, £43. to £43. 5s.; best select, £43. 10s. to £44.; Indian sheets, £48.; strong sheets, £51. 10s., and yellow metal sheets, 4 3/16d. per lb.

The sales of furnace material comprise:—700 tons ordinary Boston Montana matte, lying New York, sold at equal to 8s. 3d. per unit English terms; 44 tons Argentiferous River plate regulas, and 11 tons Argentiferous Peruvian matte, on private terms.

TYNE CHEMICAL REPORT.

WEDNESDAY.

Chemicals are very quiet, and there will not be much new business until the turn of the year. Prices are still on a basis of £1. 16s. 6d. per ton for soda crystals, and £7. 5s. for bleach. Sulphur scarce, at £4. 76/77% caustic in better demand, at £10. per ton.

Bleaching Powder, softs, £7. 5s. per ton, nett; hards, £7. 10s. per ton, nett; caustic soda, 76/77%, £10. per ton, nett; do., 70%, £8. 10s. per ton, nett; recovered sulphur, 2 cwt. bags, £4. per ton, nett. soda ash, 48%, £3. 15s. per ton, nett; do., 52%, £4. 2s. 6d.

per ton, nett; do., 56%, £4. 10s. per ton, nett; alkali, 36%, £2. 15s. per ton, nett; white alkali, 48%, £4. 10s. per ton, nett; do., 50%, £4. 15s. per ton, nett; do., 52%, £5. 5s. per ton, nett; hyposulphite of soda, 5-7 cwt. casks, £5. per ton, nett; do., 1 cwt. kegs, £5. 10s. per ton, nett; silicate of soda, 75° Tw., £2. 17s. 6d. per ton, nett; do., 100° Tw., £3. 12s. 6d. per ton, nett; do., 140° Tw., £4. per ton, nett; soda crystals, casks, £1. 16s. 6d. per ton, nett, gross weight; do., 2 cwt. bags, £1. 16s. 6d. per ton, nett; chlorate of potash, 5¼d. per lb., less 6%; pearl hardening, £3. per ton, nett; pure white sulphate of alumina, £4. 2s. 6d. per ton, nett; blanc fixe, £7. 10s. per ton, nett; chloride of barium, £7. 10s. per ton, nett; carbonate of alumina, £28. 15s. per ton, nett; aluminate of soda, £33. 15s. per ton, nett; in 5 ton lots, £28. 10s. per ton, nett.

SALT.—South Durham salt steady at 9s. 6d. per ton, f.o.b. Tees.

COALS.—There is little or no change in the market, and prices are not expected to show any variation for the remainder of the year. Today's quotations are: Best Northumbrian steam, 9s. 3d. per ton; second qualities do., 8s. 3d. to 8s. 6d. per ton; small steam, 3s. 6d. to 3s. 9d. per ton; gas coals, 7s. 6d. to 8s. per ton; coke from 13s. 6d. to 14s. per ton.

WEST OF SCOTLAND CHEMICALS.

GLASGOW, WEDNESDAY.

The oil and paraffin products of the Mineral Oil Companies of the quarter mean apparently to keep up a full volume of out-put right on to the general closing for the New Year holidays, some of the works stopping on Saturday, and others not till Monday. For approved brands rather more than the standard prices (see below) are being paid by wholesale consumers under pressure from their retail customers, and the oil stocks at makers' works are for the most part well depleted, production and dispatch being a matter of hand to mouth.

The other great product of these works, sulphate of ammonia, is in a very different case, through absence of buyers and accumulation of unplaced stocks. Prices show no halt on the down grade, now so long and so steadily pursued, and it is questionable if £11., down to which makers have come, is now procurable. Buyers are talking of £10. 18s. 9d., and may readily enough get below that before the week is over.

Ordinary chemicals discover no change in tendency, and values continue to ebb slowly. Perhaps most marked of all are chlorate of potash and caustic soda; both cheaper. Dye chemicals are all very flat.

Chief prices current are:—Soda crystals, 35s. nett, Tyne; soda ash, 48/52°, £3. 17s. 6d. to £4. 5s. nett, Tyne; white alkali, 48/52°, £4. 10s. to £5. 5s. nett, Tyne; alum in lump, £5. 10s. nett, Glasgow; caustic soda, white, 74° £9. 2s. 6d., 70/72° £8. 2s. 6d., 60/62° £7. 2s. 6d., and cream 60/62° £7., all nett, Liverpool; bleaching powder, £7. 5s., nett, Tyne; saltcake, 17s. 6d.; borax, English refined, £20., and boracic acid, £30. nett, Glasgow; bicarbonate of soda, 5-cwt. casks £6. 10s., and 1 cwt. casks £6. 15s. nett, Liverpool; bichromate of potash, 4½d. nett, for Scotch and English deliveries (for export, 4¼d. nett, f.o.b. Glasgow); bichromate of soda, 3¼d. nett, for Scotch and English deliveries (for export, 3½d. nett, f.o.b. Glasgow); chlorate of potash, 5¼d. less 5%, Liverpool; nitrate of soda, 8s. 9d.; sulphate of ammonia, £10. 18s. 9d. to £11., prompt, f.o.b., Leith; sal-ammoniac, first and second white, £39. and £37. nett, any port; sulphate of copper, £15. 10s. less 5%, Liverpool; paraffin scale, hard 1¾d.; soft, 1¾d. to 2d. per lb.; paraffin wax 120° semi-refined, 2½d.; paraffin spirit (naphtha), 7d. per gallon; paraffin oil (burning), standard No. 1 grade, 4¾d. at works, for Scotch buyers (English sales, ½d. to ¾d. lower); ditto (lubricating) 865° £4. 5s.; 885° £4. 10s. to £5., and 890/895° £5. to £5. 10s. Week's imports of sugar at Greenock were nil.

HULL PAINT, OIL, AND COLOUR REPORT.

TUESDAY.

OILS.—All the manufacturers here are pleased to extend Christmas holidays as much as possible, for there is actually little demand for goods until the New Year, from Saturday afternoon up to Thursday morning appears to be general in the oil and allied trades. The imports into Hull up to date in 1894 and 1893 have been: Linseed, 651,540 qrs. against 501,385 qrs.; rapeseed, 150,935 qrs. against 95,624 qrs.; cottonseed, 179,040 tons against 182,322 tons; olive oil, 7,848 casks against 7,184 casks; oilcakes, 18,056 tons against 22,009 tons. Tallow, 58,232 cwt. against 40,594 cwt. Bones, 9,198 tons against 4,331 tons. Turpentine, 21,838 brls. against 16,832 brls. Tar 19,684 brls. against 15,286 brls. Linseed oil has declined about 5s. per ton during the week, but closes with buyers at 19s. 4½d., naked spot or month. January-April, worth same price, May-August 18s. 9d. to 18s. 10½d., casks, 17s. 6d. and ordinary barrels, 25s. per ton extra. Boiled and refined, ditto, from £1. to £2. per ton

extra. Export for the week 1,360 cwt. Refined cotton oil quiet at 16s. 1½, naked spot, January-April, 16s. 4½d. and May-August, 17s. 1½d.; crude do., 14s. 9d., naked spot, January-April offer at 15s. Export of refined, 6,240 cwt. Olive oil, £31. to £38. per ton. Rape oil continues easy. Tallow, town melted, £25 per ton. "Vegaline," a new vegetable butter, white and neutral, for culinary and confectionery purposes, £30. per ton. Cod oil quiet, £16. to £18. per ton. Pine oil, £6. 5s. Soft soap, 14s. 6d. per cwt. Sod oil quiet. Boiled drying oil, £13. per ton. Turpentine, 21s. 3d. per cwt.

CAKES.—Linseed cakes steady, 95% pure, £6. 12s. 6d. Russians, £6. 7s. 6d. Oilcakes, £5. 7s. 6d. to £5. 12s. 6d. per ton. Cotton cakes firm but quiet: best new seed cakes, £3. 12s. 6d. to £3. 15s.; old seed, £3. 10s. per ton. Rape cakes unchanged.

PAINTS.—Trade at a standstill. Prices are: dry colours, Venetian red, from £3. 15s.; Red oxide, from £7. to £18. per ton. Blue black, £4. Yellow ochre from £3. 15s. Leads and oxide of zinc unchanged. Venetian red, black, yellow ochre, blue, green, and red oxide paints from £12. per ton. Paint remover from 25s. to 30s. per cwt. Black varnish, £5. 10s. per ton. Oak varnish from 5s. 6d. per gallon.

The Patent List.

This list is compiled from Official sources in the Manchester Technical Laboratory, under the immediate supervision of George E. Davis and Alfred R. Davis, who report professionally upon the value of Chemical Patents.

APPLICATIONS FOR ENGLISH LETTERS PATENT.

Manufacture of Saponaceous Products from Petroleum. C. Meggang, of the Petroleum Products Syndicate. 23,995. December 10.

Artificial Fuel from Petroleum. C. Meggang, of the Petroleum Products Syndicate. 23,996. December 10.
New Composition for Improving the Soil. A. J. Thovoye. 24,013. December 10.
Improved Air Pipe for Coke Ovens. J. Dutton. 24,020. December 10.
Process and Apparatus for Obtaining Ammonia and Dry Manure from Fœcal Matters. W. P. Thompson. 24,031. December 11.
Disintegrating Thomas Slag. E. Meyer. 24,092. December 11.
Obtaining Colouring Matters from Cottonseed and other like Oils. F. B. Aspinall. 24,095. December 11.
Oxidation of Fats and Oils for the Preparation of a Menstruum for Paint, Varnish, etc. S. Banner. 24,103. December 11.
Improvements in Manufacture of Vinegar. J. Holt and J. G. Lorrain. 24,113. December 11.
Improvements in Grinding and Crushing Mills. P. A. Cook. 24,733. December 13.
Manufacture of Nitro-Cellulose Ammunition. A. F. Hargreaves. 24,235. December 13.
Smokeless Furnace. C. A. Jensen. 24,287. December 13.
Manufacture of Aluminates of the Alkalies. A. G. von Grütz. 24,313. December 14.
Binding Composition for Use with Fertilizers. A. P. Radford and M. F. Hutton. 24,365. December 14.
Manufacturing Leaden-Cased Block Tin Pipe. A. Barraclough. 24,395. December 15.
Manufacture of Aldehyde Free Spirit. K. von Radziewski. 24,411. December 15.
Distilling Apparatus. M. Otto. 24,447. December 15.
Evaporating Brine, etc. E. G. Scott. 24,457. December 15.
Improvements in Disintegrators. J. H. Carter. 24,455. December 15.

Gazette Notices.

PARTNERSHIP DISSOLVED.

W. ESLEY AND JOSEPH G. TOMKINSON, trading as Esley, Tomkinson, and Co., at Chesterton, Staffordshire, chemical manufacturers.

IMPORTS OF CHEMICAL PRODUCTS

AT

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.

Week ending December 15th.

Acetic Acid—

Germany, 5 pkgs. F. Stahlschmidt & Co.
" 24 A. & M. Zimmermann

Acetone—

Holland, 10 pkgs. A. & M. Zimmermann
" 20 R. W. Greeff & Co.

Alkali—

Germany, 21 pkgs. L. & I. D. Jt. Co.

Alum—

Holland, 160 pkgs. Tough & Henderson

Aluminium—

Germany, 4 c. G. Smith & Son

Anthracene—

Holland, 79 pkgs. Burt, Boulton, & Co.

Anti Chlor—

Germany, 8 pkgs. C. S. Lovell

Arsenic—

Germany, 10 pkgs. Petri Brs.

Asbestos—

Italy, £550 Bender & Marting
" 555 W. Byford
Canada, 25 Hine, Brs. & Co.
U. States, 270 Deering & Robottom
Italy, 180 Cape Asbestos Co.
U. States, 417 Furness, Withy, & Co.
Germany, 9 Craven & Co.

Barium Chloride—

Germany, 22 pkgs. Petri Brs.

Barytes—

Holland, 21 cks. W. Taylor
Belgium, 18 W. Harrison & Co.
" 36 J. L. Lyon & Co.
" 42 Burrell & Co.
" 103 O'Hara & Hoar
Holland, 23 Hemingway & Co.
" 44 A. Zumbbeck & Co.
" 134 O'Hara & Hoar
" 8 F. Robertson

Boracic Acid—

Italy, 8 pkgs. City Coml. Wf, Ltd.

Bromide of Iron—

Germany, 23 pkgs. A. & M. Zimmermann

Bromine—

Germany, 20 pkgs. A. & M. Zimmermann

Camphor—

Germany, 22 pkgs. City Coml. Wf, Ltd.
Japan, 53 Hale & Son

Caoutchouc—

Morambique, 12 c. Prop Bull Wf.
Germany, 25 Forbes, Forbes, & Co.
" 12 Lavington Brs., Ltd.
" 9 Bottle Seal Co. Ltd.
Zanzibar, 158 L. & I. D. Jt. Co.
" 12 Wallace Brs.
" 22 Hale & Son
" 11 Clarke & Smith
E. Indies, 79
Aden, 100
" 7 Wallace Brs.
" 3 L. & I. D. Jt. Co.
" 6 Forbes, Forbes, & Co.
Natal, 18 Lewis & Peat
P. E. Africa, 15 W. M. Smith & Sons
" 1 Lewis & Peat
France, 63 Prop. Bull Wf.
" 2 W. M. Smith & Sons
" 46 Anderson, Weber, & Smith

Carbolic Acid—

Portugal, 11 Kleinwort, Sons, & Co.
Savannah, 55 Stiebel Brs.

Castor Oil—

Holland, 50 pkgs. Union Whvs. Co.
Belgium, 56 brls. Fuerst Brs.
France, 30 52 pkgs. Lucas & Spencer's Wf, Ltd.
" 56 58 cks. J. Greig
" 40 Beresford & Co.
Italy, 10 cs. Fuerst Brs.
E. Indies, 14 W. Balchin

Caustic Potash—

Belgium, 55 c. Petri Brs.

Cellulose—

Germany, 200 pkgs. T. H. Lee

Chemicals (otherwise undescribed)

Germany, 5 pkgs. Phillipps & Graves
" 18 Craven & Co.
" 53 A. & M. Zimmermann
" 85 T. H. Lee
" 2 L. & I. D. Jt. Co.
" 16 Domeier & Co.
Holland, 13 J. Barber & Co.
" 46 J. Owen
Belgium, 14 T. Palmer

Cream of Tartar—

France, 10 pkgs. Ross & Deering
" 20 W. C. Bacon & Co.
" 19 B. & F. Wf. Co.
Holland, 24 Kirkpatrick & Co.
Italy, 4 W. C. Bacon & Co.

Dextrine—

Germany, 5 pkgs. Union L. Co.
" 100 J. Barber & Co.

Dyestuffs—

Annatto
Ceylon, 32 pkgs. L. & I. D. Jt. Co.
Cochineal
Canaries, 4 pkgs. Sperling & Williams
" 24 Lewis & Peat

Divl Divl

E. Indies, 39 pkgs. Culverwell, Brooks, & Co.

Extracts

France, 111 pkgs. Prop. Chmbln's Wf.
" 95 Carey & Sons
Belgium, 40 L. J. Levinstein & Sons
" 17 T. H. Lee
U. States, 50 Schloesser Brs.
France, 30 Beresford & Co.
" 75 L. J. Levinstein & Sons
" 150 Hepburn & Co.
Germany, 10 T. H. Lee

Indigo

E. Indies, 38 cts. Ross & Deering
Holland, 1 Marshall & French
E. Indies, 16 Walker, Munzie, & Co.
" 11 Wrightson & Son
" 3 Arbuthnot, Latham, & Co.

Myrabolams

E. Indies, 667 pkgs. Hoare, Wilson & Co.
" 1,910 W. Shelcott
" 870 L. & I. D. Jt. Co.
" 667 Marshall & French

Saffron

Spain, 1 pkge. C. Brumlen & Sons

Shumac

Italy, 50 pkgs. J. Kniff & Co.
" 500 Beresford & Co.
" 1,580 J. Kitchin, Ltd.
" 48 Union L. Co.
" 450 A. Slater & Co.
" 500 Harris Brs.
" 300 W. Shelcott
" 1,000 Bevington & Sons
" 154 F. V. Smythe & Co.
" 275 A. Laming & Co.

Tanner's Bark

Natal, 95 t. A. & W. Nesbitt

Turmeric

E. Indies, 850 pkgs. F. Claydon & Co.
" 1,000 W. Shelcott
" 41 W. Balchin

Valonia

Greece, 15 t. J. Graves
A. Turkey, 22 Beresford & Co.
" 206 A. & W. Nesbitt
" 1 J. Graves
" 130 Adam Brs.
E. Turkey, 70 Schloesser Brs.
A. Turkey, 1 M. D. Co.

Farina—

Germany, 100 pkgs. T. H. Lee
" 1,181 Ohlenschlager Brs.
Holland, 10 C. Faust & Co.

French Chalk—

Italy, £215 W. Harrison & Co.

Glucose—

Germany, 15 pkgs. 127 c. M. D. Co.
U. States, 500 G. Hedges & Sons
" 500 500 Barrett, Tagant & Co.
" 50 216 Prop. Scott's Wf.
" 500 2,855 L. Sutro & Co.
Germany, 600 600 Baxter & Hoare
" 400 400 J. Barber & Co.
France, 82 82
" 200 200 Barrett, Tagant & Co.

Infusorial Earth—

Germany, £27 Perkins & Hower

Lead Acetate—

Germany, 26 pkgs. F. Boehm

Magnesia—

Holland, 5 pkgs. A. & M. Zimmermann

Manganese Ore—

Japan, 25 t. D. E. Recknell

Manure—

Germany, 50 t. Perkins & Hower
E. Indies, 697 A. Hunter & Co.
" 250 F. J. Cornwell, Sons, & Co.
France, 158 J. Burnett & Sons

Methyl Alcohol—

Germany, 4 dms. Lister & Biggs
Belgium, 10 cks. "

Mica —	E. Indies, £20	W. M. Smith & Sons
Naphthaline —	Germany, 45 pkgs.	Fleming's Oil Co.
Ochre —	France, 150 brls.	W. Harrison & Co.
	Holland, 12 pkgs.	Phillipps & Graves
Paraffin Wax —	U. States, 4,415 brls.	Anglo-American Oil Co.
	" 130	H. Hill & Sons
	" 248	Mordaunt Bros.
	" 135	W. Balchin
Phosphate Rock —	Belgium, 31.	H. & E. Albert
Pitch —	Sydney, 23 cks.	J. Greig
	Germany, 11 brls.	Bancroft, Snell & Co.
	N. Russia, 200 cks.	Linck, Moeller & Co.
	Germany, 15 brls.	C. B. Leighton
Plumbago —	Italy, 20 bgs.	Anti-Fouling Paint Co.
	Germany, 6 cks.	H. J. Enthoven & Sons
	Italy, 100 bgs.	B. Gallaway
	Holland, 108 cks.	"
	Germany, 18	H. Johnson & Sons
Potassium Carbonate —	Germany, 125 c.	A. J. Luke & Co.
	" 10 pkgs.	F. Boehm
	" 395 c.	W. G. Blagden
	France, 60	J. A. Reid
	" 100	Petri Bros.
	Germany, 200	Charles & Fox
	Holland, 105	C. Hof & Co.
	" 5	J. Barber & Co.
Potassium Cyanide —	Germany, 1 pkge.	B. & F. Wf. Co.
Potassium Oxymuriate —	Holland, 5 pkgs.	F. Boehm
Potassium Sulphate —	Belgium, 10 pkgs.	G. Boor & Co.
	Germany, 50 pkgs.	A. E. Piggott
	" 254	Bessler, Waechter & Co.
Pumice Stone —	Italy, 10½ t.	Acton & Borman
	" 10	Seaward Bros., Ltd.
	" 5	H. B. Alder & Son
Quicksilver —	Spain, 77 brls.	L. & I. D. Jt. Co.
	Italy, 200	H. Bath & Son
Saltpetre —	Germany, 40 cks.	J. Hall & Son
	" 213	P. Hecker & Co.
	" 2	Petri Bros.
	E. Indies, 59 bgs.	Co-op. Lighterage Assn.
	" 178	Lucas & Spencer's Wf. Co.
	" 450	C. Wimble & Co.
	" 162	A. Hunter & Co.
	" 161	Henckell du Buisson & Co.
Silica —	Germany, £200	A. Haacke & Co.
Soda Ash —	Holland, 2,000 c.	R. Waters
Sodium Acetate —	France, 23 pkgs.	J. Burnett & Sons
Sodium Hypsulphite —	Holland, 100 pkgs.	F. Boehm
	" 100	Beresford & Co.
	" 200	Petri Bros.
	Germany, 1	F. Boehm
Starch —	Germany, 10 pkgs	Phillipps & Graves
	" 1 275	Horne & Co.
	" 660	Seaward Bros., Ltd.
	Holland, 620	Little & Johnston
	" 620	A. Starck
	" 30	Phillipps & Graves
	France, 110	S. Potter
	Belgium, 308	T. H. Lee
	Holland, 19	G. Rahn & Co.
Stearine —	Belgium, 68 bgs.	H. Hill & Sons
	France, 249	Walbaum & Tosetti
Sulphur —	Italy, 100 t.	T. Merry & Son
	" 20	C. Tennant, Sons, & Co.
	" 5	H. W. Ison
Sulphur Ore —	Australia, 20 t.	Harrold Bros.
Talc —	France, £200	T. Trapp & Sons
	E. Indies, 10	Allen Bros. & Co.

Tar —	N. Russia, 1,933 brls.	Linck, Moeller, & Co.
	Germany, 26	C. S. Lovell
Tartaric Acid —	Italy, 50 pkgs	B. & F. Wf. Co.
	France, 12	"
	Holland, 10	"
	" 8	Kirkpatrick & Co.
Turpentine —	Savannah, 821 brls.	Produce Brokers' Co., Ltd.
	" 4,619	Nickoll & Knight
Ultramarine —	Holland, 7 pkgs. 3 cs.	Haeffoer, Hilpert & Co.
	" 15	W. Harrison & Co.
	Belgium, 4 cks.	Leach & Co.
	Germany, 28	T. Hamilton
Varnish —	Belgium, 2 pkgs.	Wilson & Co.
	Germany, 6	L. & I. Dk. Co.
	France, 12	Flageollet & Co.
	U. States, 47	Pinchin, Johnson & Co.
White Lead —	Germany, 50 cks	Randall Bros.
	" 58	T. & W. Farmiloe
	" 23	Burrell & Co.
	Holland, 49	"
	" 38	D. Storer & Sons
Wood Pulp —	Norway, 3,481 pkgs.	Daily Telegraph Co.
	Holland, 1 318	E. J. & W. Goldsmith
	Germany, 127	W. G. Taylor & Co.
	" 245	O. Herrlich
	Portugal, 400	L. Knoblauch
	Sweden, 80	W. G. Taylor & Co.
	Norway, 246	"
	Germany, 862	E. J. & W. Goldsmith
	N. Russia, 92	Thms. S. T. & L. Co.
	Norway, 10	M. G. Skrammers
Zinc Oxide —	Germany, 50 brls.	M. Ashby, Ltd.

LIVERPOOL.

Week ending December 13th.

Ammonia —	Rotterdam, 6 cs.	
Antimony —	Antofagasta, 150 bgs.	
	Valparaiso, 148 sks.	Kleinwort, Sons & Co.
	" 482 bgs.	"
Asbestos —	Montreal, 1,002 bgs.	
Barytes —	Antwerp, 40 bgs.	
Benzine —	New York, 500 brls.	
Bone Ash —	B. Ayres, 161 bgs.	H. Brown
Bone Meal —	Bombay, 3,000 bgs.	
Boracic Acid —	Leghorn, 50 cks.	
Borate of Lime —	Antofagasta, 2,674 bgs.	
Borax —	Valparaiso, 500 bgs.	
Castor Oil —	Calcutta, 1,068 cs.	Ralli Bros.
	Marseilles, 39 cks.	J. J. Mack & Son
	" 29	J. H. Briscall & Co.
	Leghorn, 242	53 brls. 11 cs.
	Norfolk, Va., 21 cs.	"
Chemicals (otherwise undes.) —		
Cod Oil —	Hamburg, 20 brls.	
Colours —	Rotterdam, 2 bxs. 9 cs.	
	Ghent, 4 brls.	J. T. Fletcher & Co.
Cottonseed Oil —	N. Orleans, 500 brls.	
	New York, 470	
Cream of Tartar —	Marseilles, 8 cks.	
	Barcelona, 5	45 brls.
Dyestuffs —	Argols	
	Oporto, 37 cks.	

Cochineal —	Gd. Canary, 4 bgs.	Widow, Duranty & Son
	" 8	Barrett & Co.
Cutch —	Rangoon, 950 bxs.	
Divi Divi —	Rio Hacha, 196 t.	E. Brownbill & Co.
Extracts —	Baltimore, 15 brls.	Houston & Laurie
	New York, 10	25 bxs.
	Bordeaux, 510 cks.	
	Marseilles, 150	
	Belize, 86 t.	J. Steven & Son
Fustic —	Savanilla, 1,010 ps.	G. H. Muller & Co.
Logwood —	Belize, 86 t.	J. Steven & Son
Madder —	Rotterdam, 4 cks.	
Orchella —	Valparaiso, 18 bls.	Rosing Bros. & Co.
Saffron —	Valencia, 1 cs.	Verde & Co.
	" 2	"
Sumac —	Palermo, 475 bgs.	
Valonia —	Patras, 260 bgs.	G. E. Spiropulo
	" 230	"
	Syria, 175	Barff & Co., Ltd.
	" 66	G. T. Scrinai
	Smyrna, 7	Barry Bros.
	" 11	"
Dyestuffs (otherwise undescribed) —	New York, 4 bxs.	
Glucose —	New York, 250 brls.	50 pails.
	Stettin, 218 cks.	Browne, Geveke & Co.
	Hamburg, 105	
	Bremen, 40 bgs.	
	New York, 250 brls.	
Iodine —	Valparaiso, 8 brls.	
Lead Acetate —	Hamburg, 17 cks.	
Naphtha —	New York, 6,493 brls.	
Ochre —	Marseilles, 83 cks.	
Paint —	Montreal, 2 cs.	Wingate & Johnston
Phosphate —	Ghent, 150 bgs.	
	" 570 t.	Phosphate Guano Co.
Potash —	Dunkirk, 13 dms.	
Potassium Carbonate —	Hamburg, 51 cks.	
Pyrites —	Huelva, 1,975 t.	
	" 3,095	Matheson & Co.
Pumice Stone —	Leghorn, 29 bgs.	
	Messina, 20	
Salt —	Lisbon, 350 bgs.	Lincham Bros.
Saltpetre —	Calcutta, 175 bgs.	
	Hamburg, 90 brls.	
Sheep Dip —	B. Ayres, 52 cs.	868 cks. 676 dms. 18 brls.
	"	North Island Chemical Co.
Soap —	Bari, 164 cs.	
	Marseilles, 2	T. Tedcastle & Co.
	" 2	40 bxs.
Soapstone —	Genoa, 20 bgs.	
	" 500	W. Harrison & Co.
Starch —	Boston, 110 brls.	
	Hamburg, 560 cs.	
	Antwerp, 10	J. T. Fletcher & Co.
	Rotterdam, 20	
	" 170	
Stearine —	New York, 25 bds.	Co-op. W'sale Society
	Antwerp, 64 bgs.	
Sulphate of Barytes —	Ghent, 12 cks.	

Sulphur —	Hamburg, 15 brls.	
Tallow —	Baltimore, 63 tcs.	
	Boston, 120	
	" 300 brls.	G. W. Stone
	" 150 tcs.	T. M. Marc & Co.
	B. Ayres, 60 pps.	H. Brown
	" 13	Las Cahezas Est. Co.
	Rotterdam, 1 ck.	
Tartar —	Bordeaux, 5 cks.	
	Naples, 4	
Tartaric Acid —	Rotterdam, 4 cks.	
Ultramarine —	Hamburg, 2 cs.	
	Rotterdam, 25	
Varnish —	New York, 3 brls.	
Waste Salt —	Dunkirk, 100 bgs.	
White Lead —	Rotterdam, 110 cks.	
Wood Pulp —	Sannesund, 3,513 bls.	83 lds.
	Skien, 7,759	
	Ronneby, 3,088	
Zinc Ashes —	New York, 7 cks.	
Zinc Oxide —	Marseilles, 89 brls.	132 pcs.
	New York, 30	
	Rotterdam, 175 cks.	

MANCHESTER.

Week ending December 15th.

Acid —	Rotterdam, 4 cs.	
Alum —	Rotterdam, 14 brls. 14 cks.	
Ammonium Chloride —	Hamburg, 1 ck.	
Caoutchouc —	Hamburg, 29 cks.	
Carbonic Acid —	Rotterdam, 12 tubes.	
Chemicals (otherwise undescribed) —	Rotterdam, 8 cks.	
Colours —	Rotterdam, 59 cs. 136 cks. 77 brls. 12 bxs.	
	Antwerp, 5	17 6
	Treport, 3	Armati & Harrison
Cream of Tartar —	Rotterdam, 4 cks.	
Dried Blood —	Treport, 15 cs.	Armati & Harrison
Extracts —	Treport, 39 cks.	Armati & Harrison
Farina —	Hamburg, 300 bgs.	
Glucose —	Hamburg, 24 cks.	
Limestone —	Antwerp, 1 crt.	
Lead Acetate —	Hamburg, 2 cks. 2 cs.	
	Rotterdam, 29	
Litharge —	Rotterdam, 15 cks.	
Ochre —	Treport, 30 cks.	Armati & Harrison
Potash —	Hamburg, 21 cks.	
	Antwerp, 9 dms.	
	Treport, 41	7 cyldrs. Armati & Harrison
Soap —	Rotterdam, 1 cs.	
Soda —	Treport, 40 cs.	Armati & Harrison
Sodium Acetate —	Treport, 14 cks.	Armati & Harrison
Sodium Phosphate —	Hamburg, 6 cks.	
Starch —	Hamburg, 130 cs.	
	Rotterdam, 90	
	Antwerp, 310	

Tannin —		
Hamburg,	2 cks.	
Tar —		
Hamburg,	58 cks.	
Tartar Emetic —		
Hamburg,	8 cs.	
Tartaric Acid —		
Rotterdam,	10 cks.	
Tin Perchloride —		
Antwerp,	2 brls.	
Ultramarine —		
Hamburg,	20 cks. 3 cs.	
Waste Salt —		
Hamburg,	qty.	
Treport,	10 cks.	Arnati & Harrison
Wood Pulp —		
Rotterdam,	69 bls.	
Drammen,	1,850	
Skien,	11,816	
Hamburg,	392 pkgs.	
Zinc Oxide —		
Rotterdam,	50 brls.	
Zinc Sulphate —		
Hamburg,	8 cks.	

HULL.

Week ending December 15th.

Acid —		
Leghorn,	36 cks.	Wilson, Sons, & Co., Ltd.
Albumen —		
Libau,	10 cs.	Wilson, Sons, & Co., Ltd.
Dunkirk,	46	
Alum —		
Rotterdam,	6 cks.	W. & C. L. Ringrose
Aniline —		
Amsterdam,	1 keg	W. & C. L. Ringrose
Aniline Colour —		
Rotterdam,	1 ck.	W. & C. L. Ringrose
Barytes —		
Rotterdam,	22 cks.	W. & C. L. Ringrose
Antwerp,	460 bgs. 13 cks.	Bailey & Leatham
Bremen,	22 cks. 41	Hutchinson & Son
Bone Meal —		
Kurrachee,	5,000 bgs.	
Carbolic Acid —		
Amsterdam,	45 cks.	W. & C. L. Ringrose
Carbonic Acid —		
Rotterdam,	50 tubes	Hutchinson & Son
Castor Oil —		
Leghorn,	39 pks.	Wilson, Sons, & Co., Ltd.
"	5 cs.	
Genoa,	15	
Chemicals (otherwise undescribed)		
Hamburg,	11 cks.	Wilson, Sons, & Co., Ltd.
"	1 cs.	Lofthouse & Saltmer
Bremen,	13 pkgs.	Veltmann & Co.
Antwerp,	20 cks.	Wilson, Sons, & Co., Ltd.
Cod Oil —		
Drontheim,	4 brls.	
Aalesund,	285	
Colours —		
Riga,	710 cks.	
Antwerp,	10 pkgs. 1 ck.	Wilson, Sons, & Co., Ltd.
Rotterdam,	10 cks. 8 cs. 28 pkgs.	Hutchinson & Son
"	7 cs. 13 cks.	W. & C. L. Ringrose
Cottonseed Oil —		
New York,	350 brls.	Wilson, Sons, & Co., Ltd.
Dextrine —		
Stettin,	100 bgs.	
Dyestuffs —		
Alizarine		
Rotterdam,	58 brls.	Hutchinson & Son
Madder		
Rotterdam,	5 cks.	Wilson, Sons, & Co., Ltd.

Amsterdam,	1 bx.	W. & C. L. Ringrose
Dunkirk,	10 cks.	Wilson, Sons, & Co., Ltd.
Myrabolams		
Bombay,	2,020 bgs	
Farina —		
Stettin,	250 bgs.	
Ghent,	35 118 cs.	
Glucose —		
Stettin,	75 cks.	
Hamburg,	15	
N. York,	249 brls.	Wilson, Sons, & Co., Ltd.
Naphtha —		
Libau,	1 brl.	
Ochre —		
Marseilles,	9 cks.	Wilson, Sons, & Co., Ltd.
Paint —		
N. York,	15 cs.	Wilson, Sons, & Co., Ltd.
Phosphate —		
Ghent,	1,618 bgs.	
Pitch —		
Hamburg,	63 brls.	
Plumbago —		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Pumice Stone —		
Leghorn,	2 brls.	Wilson, Sons, & Co., Ltd.
"	60 bgs.	
Saltpetre —		
Hamburg,	1 ck.	E. & H. Allison
"	20 cks.	Lofthouse & Saltmer
Rotterdam,	135 bgs.	Wilson, Sons, & Co., Ltd.
Soap —		
N. York,	1 cs.	Reckitt & Sons
Marseilles,	18	Wilson, Sons, & Co., Ltd.
Sodium Acetate —		
Rouen,	28 cks.	
Starch —		
Bremen,	1,637 cs.	Veltmann & Co.
Antwerp,	200	J. R. & A. Mayfield
Stearine —		
Antwerp,	9 pkgs.	Wilson, Sons, & Co., Ltd.
Tallow —		
Gothenburg,	1 bx.	Wilson, Sons, & Co., Ltd.
N. York,	3 brls.	Wilson, Sons, & Co., Ltd.
Boston,	220 trcs.	Wilson, Sons, & Co., Ltd.
Tar —		
N. York,	2 brls.	Wilson, Sons, & Co., Ltd.
Leghorn,	3	
Tar Oil —		
Hango,	25 cks.	J. Good & Sons
Tartaric Acid —		
Rotterdam,	2 cks.	W. & C. L. Ringrose
Turpentine —		
Savannah,	2,848 brls.	
Libau,	105 cks.	
Ultramarine —		
Rotterdam,	4 cks.	W. & C. L. Ringrose
Varnish —		
Antwerp,	6 brls.	
New York,	39 pkgs.	
Leghorn,	2	
White Lead —		
Antwerp,	39 cks.	Bailey & Leatham
Rotterdam,	37	W. & C. L. Ringrose
Wood Pulp —		
Abo,	84 bls.	J. Good & Sons
Zinc Oxide —		
N. York,	60 brls.	Wilson, Sons, & Co., Ltd.
Rotterdam,	25 cks.	Hutchinson & Son
Zinc White —		
Rotterdam,	33 cks.	W. & C. L. Ringrose

GLASGOW.

Week ending December 20th.

Acetate of Lime —		
New York,	553 bgs.	
Albumen —		
Hamburg,	31 cks.	
Aniline —		
Hamburg,	1 cs. 1 pkge.	
Aniline Salt —		
Rotterdam,	9 cks.	J. Rankine & Son
Barytes —		
Rotterdam,	46 cks.	J. Rankine & Son
Barytes Sulphate —		
Antwerp,	100 bgs. 18 cks.	
Bone Meal —		
Bombay,	4,786 bgs.	
Carbonic Acid —		
Rotterdam,	15 tubes.	
Castor Oil —		
Antwerp,	85 cks.	
Marseilles,	129 brls. 30 cs.	
Cellulose —		
Hamburg,	10 bls.	
Colours —		
Rotterdam,	10 bxs. 4 brls.	J. Rankine & Son
Antwerp,	5 cks. 5 cs.	
Hamburg,	53 pkgs.	
Cottonseed Oil —		
New York,	105 brls.	
Cream of Tartar —		
Marseilles,	4 brls.	
Dyestuffs —		
Alizarine		
Rotterdam,	105 pkgs.	
Extract		
Hamburg,	1 cs.	
Antwerp,	6 cks.	
Madder		
Marseilles,	4 brls.	
Farina —		
Antwerp,	2 bgs.	
Glucose —		
New York,	349 brls.	
Infusorial Earth —		
Hamburg,	49 bgs.	
Kelp —		
Bergen,	700 bgs.	
Lead Acetate —		
Rotterdam,	44 cks.	
Manganese Sulphate —		
Hamburg,	3 cks.	
Ochre —		
Marseilles,	143 brls. 263 cs.	
Oxalic Acid —		
Rotterdam,	6 cks.	
Phosphates —		
Ghent,	1,645 bgs.	
Phosphorus —		
Baltimore,	1 cs.	
Pitch —		
Antwerp,	13 cks.	
Marseilles,	60 brls.	
Potash —		
Rotterdam,	21 cks.	
Hamburg,	39	
Rosin —		
Charleston,	886 brls.	Sandeman Bros.
New York,	1,700	
Sodium Hyposulphite —		
Hamburg,	126 kgs.	
Sodium Prussiate —		
Antwerp,	2 cks.	
Starch —		
Antwerp,	200 cs. 200 pkgs.	
Rotterdam,	40	
Stearine —		
Rotterdam,	14 cks.	J. Rankine & Son
Antwerp,	76 bgs.	
Sulphur Ore —		
Seville,	650 t.	Seville Sulphur & Copper Co., Ltd.
Tallow —		
New York,	225 tcs.	
Tar —		
New York,	180 brls.	
Turpentine —		
Charleston,	1,650 brls.	L. & J. M'Lellan
Varnish —		
New York,	19 brls. 2 cs.	

Waste Salt —		
Hamburg,	226 cks. 2,209 bgs.	
White Lead —		
Antwerp,	4 cks.	J. Rankine & Son
Rotterdam,	19	
Whiting —		
Dieppe,	134 bgs. 38 cks.	
Wood Pulp —		
Bergen,	2,230 bls.	
Christiania,	1,860	
Zinc Oxide —		
New York,	20 brls.	
Antwerp,	40 cks.	J. Rankine & Son
Rotterdam,	10	
Zinc White —		
Rotterdam,	50 cks.	

TYNE.

Week ending December 15th.

Acid —		
Copenhagen,	1 bx.	
Alum Earth —		
Hamburg,	35 cks.	Tyne S. S. Co.
Cellulose —		
Christiania,	80 bls.	
Colours —		
Rotterdam,	2 cks.	Tyne S. S. Co.
Cod Oil —		
Bergen,	10 brls.	
Kieselguhr —		
Bergen,	102 bgs.	
Saltpetre —		
Hamburg,	3 cks.	Tyne S. S. Co.
Soap —		
Rotterdam,	3 cs.	Tyne S. S. Co.
Starch —		
Rotterdam,	140 cs.	Tyne S. S. Co.
Tallow —		
Rotterdam,	10 tcs.	Tyne S. S. Co.
Wood Pulp —		
Christiania,	80 bls.	
Gothenburg,	30	

GOOLE.

Week ending December 12th.

Alkali —		
Hamburg,	14 cks.	
Barytes —		
Rotterdam,	7 cks.	
Caoutchouc —		
Boulogne,	4 cks.	
Carbonate of Lime —		
Antwerp,	133 bgs.	
Colours —		
Hamburg,	2 cks.	
Dyestuffs —		
Alizarine		
Rotterdam,	70 pkgs.	
Logwood		
Jamaica,	428 t.	
Dyestuffs (otherwise undescribed)		
Boulogne,	12 cks. 15 cs. 7 pkgs.	
Ghent,	14 4	102
Rotterdam,		
Farina —		
Delfsryhl,	1,647 bgs.	
Hamburg,	690 304 cks.	
Saltpetre —		
Hamburg,	5 cks.	
Antwerp,	67 bgs.	
Soda —		
Rotterdam,	8 brls.	
Zinc Oxide —		
Antwerp,	25 cks.	
Zinc White —		
Antwerp,	20 cks.	

GRIMSBY.

Week ending December 15th.

Aniline Dyes —		
Hamburg,	6 cks.	
Antwerp,	19 pkgs.	
Chemicals (otherwise undescribed)		
Hamburg,	34 cks. 23 pkgs.	
Antwerp,	3	
Colours —		
Hamburg,	21 cs. 15 cks.	
Antwerp,	16 25 pkgs.	
Dyestuffs (otherwise undescribed)		
Dieppe,	25 cks.	
Zinc Ashes —		
Antwerp,	5 pkgs.	

EXPORTS OF CHEMICAL PRODUCTS

OF

THE PRINCIPAL PORTS OF THE UNITED KINGDOM.

LONDON.			
Week ending December 19th.			
Acids—			
New York, 10 dms.	£27		
Singapore, 4 pks.	3		
Alkali—			
Singapore, 8 c.	£5		
Cape Town, 1	4		
Alum—			
Cape Town, 2 t.	£14		
Ammonia—			
Rangoon, 1 cs.	£69		
Ammonium Carbonate—			
Santos, 13 c.	£32		
Wellington, 3	10		
Ammonium Chloride—			
Freemantle, 6 c.	£10		
Bourgas, 6	11		
Constantinople, 3 t. 10	119		
Piræus, 5	10		
Tientsin, 5	9		
Cape Town, 6	11		
Samsoun, 10	12		
Trebizonde, 1 11	57		
Constantinople, 1	38		
Ammonium Nitrate—			
Halifax, 5 t.	£186		
Arsenic—			
Rio de Janeiro, 7 c.	£5		
Melbourne, 5 t.	78		
Napier, 5	79		
Ammonium Sulphate—			
Jersey, 1 t.	£14		
Bisulphite of Lime—			
Cape Town, 4 hds.	£21		
Boric Acid—			
Melbourne, 4 t. 10 c.	£162		
Yokohama, 2 10	80		
Borax—			
Cape Town, 2 t.	£45		
Calcined Magnesia—			
Genoa, 1 cs.	£15		
Calcium Chloride—			
Melbourne, 16 t. 7 c.	£126		
Wellington, 10	44		
Caustic Soda—			
Freemantle, 3 t. 5 c.	£29		
Melbourne, 1 16	61		
Normanton, 2	22		
Cleveland Bay, 11	30		
Carbolic Acid—			
Newport, 49 cks.	£210		
Antwerp, 6	11		
Auckland, 9 c.	6		
Pt. Elizabeth, 10	15		
Carbonic Acid Gas—			
Hamburg, 4 cs.	£34		
Bergen, 4 c.	15		
Chemicals (otherwise unies.)—			
Launceston, 4 pks.	£6		
Hamburg, 12 cs.	9		
Calcutta, 5 cks.	7		
Melbourne, 2 pks.	4		
Bordeaux, 10 cks.	21		
Flushing, 2	20		
Delagoa Bay, 1	6		
Philadelphia, 5	13		
Genoa, 12	125		
Shanghai, 10	33		
E. London, 4	3		
Singapore, 12 dms.	13		
Algoa Bay, 3 dms. 2	34	5 c	161
pt. cs.			
Timaru, 4	17		
Brisbane, 3 pks.	14		
Citric Acid—			
Brussels, 10 c.	£70		
Calcutta, 1 cs.	3		
Seville, 5	37		
Cape Town, 3	19		
Wellington, 3	23		
Sydney, 3	22		
Townsville, 2	8		
Natal, 1	7		
Coal Products—			
Bombay, 25 cks.	£166		
Aniline Dyes			
Dunedin, 1 cs.	£10		
Melbourne, 1	6		
Aniline Oil			
Ghent, 1 brl.	£10		
Hamburg, 1 cs.	10		
Aniline Salts			
New York, 37 cks.	£300		
Anthracene			
Dasseldorf, 545 cks.	£4,000		
Werdinger, 39	500		
Benzol			
Rotterdam, 37 puns.	£250		
Creosote			
Marseilles, 30 brls.	£27		
Dyes			
Boaton, 12 pks.	£210		
Calcutta, 1 cs.	40		
Plitch			
Syrian Coast, 50 brls.	£23		
Alexandria, 105	27		
Nantes, 181 t.	448		
Boston, 300	175		
Dunkirk, 170	265		
Pt. Elizabeth, 2 cs.	1		
E. London, 12 dms.	1		
Dunkirk, 960 t.	1,905		
Antwerp, 1,101	1,586		
Pyridine Bases			
Amsterdam, 2 t. 13 c.	£103		
Tar			
Natal, 10 dms.	£5		
Boston, 500 brls.	240		
Algoa Bay, 130 drs.	7		
E. London, 150 2 cks.	10		
Trinidad, 5 rnlts.	4		
Rangoon, 10	71		
Melbourne, 30 kgs.	15		
Cape Town, 15 dms.	5		
Tar Refuse			
Malmo, 50 brls.	£32		
Coal Products (otherwise unies.)—			
Brisbane, 25 dms.	£5		
Copperas—			
Bourgas, 7 t.	£12		
Varna, 3 10 c.	6		
Copper Sulphate—			
Sydney, 1 t.	£21		
Paris, 46	775		
Treport, 10	175		
Cream of Tartar—			
Hobart, 1 c.	£7		
Wellington, 18	61		
Rockhampton, 5	24		
Adelaide, 5	20		
Disinfectants—			
Melbourne, 10 t. 14 c.	£129		
Calcutta, 500 dms.	36		
London, Ont, 1 3	42		
Guano—			
Jersey, 110 t.	£935		
Manure—			
Jersey, 140 t. 6 c.	£1,038		
Demerara, 75	800		
Jamaica, 43	358		
Havre, 25	100		
Genoa, 30	99		
Paris, 44 7	104		
Charente, 30 3	180		
Ghent, 56 2	588		
Cape Town, 48 15	145		
Hioho, 5	50		
Nitric Acid—			
Madras, 7 cs.	£9		
Oxalic Acid—			
Calcutta, 1 ck.	£12		
Phosphoric Acid—			
New York, 1 t. 1 c.	£108		
Baltimore, 16	50		
Boston, 2 10	132		
Phosphorus—			
Melbourne, 4 cs.	£41		
Madra, 1 c.	12		
Melbourne, 10	100		
Potash—			
Melbourne, 15 cks.	£49		
Genoa, 1 c.	12		
Potash Salts—			
Auckland, 6 t. 2 c.	£912		
Potassium Bichromate—			
Hobart, 5 c.	£12		
Potassium Chlorate—			
Gothenburg, 3 kgs.	£8		
Potassium Hypophosphite—			
New York, 4 c.	£62		
Potassium Prussiate—			
Genoa, 2 t. 5 c.	£200		
Salicylic Acid—			
Brisbane, 1 cs.	£40		
Saltetre—			
Gibraltar, 10 t.	£230		
Melbourne, 1	23		
Rio de Janeiro, 2 12 c.	61		
Madra, 10	15		
Wellington, 4	6		
Sheep Dip—			
Falkland Is., 11 c.	£18		
E. London, 19	50		
Odessa, 5	10		
B. Ayres, 9 t. 18	349		
Melbourne, 200 cs.	500		
Natal, 7 15	323		
Silver Nitrate—			
Bombay, 1 cs.	£21		
Soda Ash—			
Auckland, 25 t.	£69		
Soda Crystals—			
Bremerhaven, 1 t 6 c.	£6		
Sydney, 54 5	109		
Sodium Acetate—			
Adelaide, 5 t. 11 c.	£67		
Sodium Bicarbonate—			
Sydney, 5 t. 6 c.	£15		
Calcutta, 2	3		
Kobe, 1	30		
Philadelphia, 1 t	28		
Algoa Bay, 1	7		
Sodium Bisulphite—			
Melbourne, 10 cks.	£15		
Sodium Carbonate—			
Algoa Bay, 1 t.	£9		
Sodium Hypophosphite—			
New York, 5 c.	£93		
Sodium Oxide—			
Shanghai, 1 cs.	£5		
Sodium Salicylate—			
Cape Town, 1 c.	£26		
Sodium Sulphate—			
New York, 2 t. 18 c.	£20		
Strontium Carbonate—			
New York, 10 c.	£17		
Sulphur—			
Calcutta, 4 t.	£22		
Algoa Bay, 6 14 c.	57		
Sulphur Dioxide—			
Melbourne, 1 t. 1 c.	£141		
Sulphuric Acid—			
Colombo, 3 t. 1 c.	£18		
Cape Town, 1 10	28		
Natal, 1	54		
Sulphuric Ether—			
Colombo, 2 dms.	£8		
Tartaric Acid—			
Sydney, 1 t. 13 c.	£155		
Cape Town, 3	14		
Melbourne, 4 15 50 kgs.	676		
ALEXANDRIA.			
Week ending December 19th.			
Albumen—			
New York, 4 t. 17 c.	£251		
Alkali—			
Hong Kong, 7 c.	£12		
Alum—			
Cavala, 2 t. 16 c.	£13		
Volo, 1 9 2 q.	7		
Alexandretta, 4 10 3	31		
Calcutta, 25	147		
Santos, 1 19 1	10		
Beyrout, 5 16	41		
Tripoli, 1 16	12		
Boston, 14	98		
Alexandria, 14	98		
Cartagena, N. G., 2 cks.			
Alumina Sulphate—			
Boston, 1 t.	2 q.	£30	
Ammonia (Liquid)—			
B. Ayres, 9 c. 1 q.	£133		
Newport News, 54 t. 1 3	432		
Ammonium Carbonate—			
Bordeaux, 10 c.	£18		
Gothenburg, 13 2 q.	26		
Konigsberg, 1 t.	36		
Odense, 1	3	36	
Copenhagen, 12 2	23		
Vigo, 12	21		
Genoa, 1 5	45		
Ammonium Chloride—			
Bombay, 4 t. 10 c.	£166		
Gothenburg, 1 15	43		
Lisbon, 9	15		
Barcelona, 5 5	128		
Genoa, 1 5 1 q.	47		
Ammonium Sulphate—			
Las Palmas, 15 t. 3 c. 2 q.	£159		
Samarang, 50	650		
Tarragona, 4 17 2	62		
Alicante, 20 13 3	248		
Baltimore, 60 5 1	655		
Naples, 51 19	623		
Valencia, 127 4	1,594		
Arsenic—			
Cartagena, Sp., 1 t. 2 c. 1 q.	£17		
Asbestos—			
Shanghai, 2 cs.			
Yokohama, 1			
Bleaching Powder—			
Baltimore, 260 cks.			
Boston, 606	185 cs.	40 bxs	
Calcutta, 10			
Cape Town, 10			
Leghorn, 10			
Bombay, 7			
Newport News, 78			
New York, 186	140		
Portland, 17			
Rouen, 56			
Syra, 7			
Trieste, 8			
Boric Acid—			
New York, 10	£17		
Borax—			
Riga, 2 t. 7 c.	£40		
Vera Cruz, 11	10		
Ghent, 1 1	21		
Rotterdam, 35 7	728		
Philadelphia, 9 4	182		
New York, 4 8 3 q.	82		
Boston, 5	100		
Genoa, 7 13	153		
Barcelona, 5	100		
Caoutchouc—			
B. Ayres, 4 cs.			
Rio de Janeiro, 1			
Carbolic Acid—			
Yokohama, 1 t. 17 c. 1 q.	£85		
Rotterdam, 7 5	247		
Calcutta, 2	21		
Hamburg, 22 10	1,348		
Genoa, 13 2	24		
Caustic Potash—			
Newcastle, N.S.W., 2 t. 3 c.	£54		
Sydney, 3 14	70		
Caustic Soda—			
Algoa Bay, 46 dms.	5 cs.		
Amsterdam, 160			
Baltimore, 155			
Bombay, 50	81 brls.		
Boston, 42			
Brisbane, 185			
B. Ayres, 32			
Calcutta, 5			
Cartagena, N. G., 300			
East St. Louis, 300			
Genoa, 300			
Halifax, 25			
Hong Kong, 49			

Malta,	61	
Memphis,	100	
Messina,	16	
M. Video,	50	
Montreal,		2
N. Orleans,	430	
New York,	286	20 lxs. 125
Oporto,	30	
Portland,	100	
Rio de Janeiro,	120	
San Francisco,	29	20
Tarragona,	20	
Vigo,	15	
Adelaide,	50	
Baltimore,	120	
Barcelona,	88	
Cienfuegos,	30	
Dunkirk,	80	
Geantnamo,	10	
Higo,	130	
Lisbon,	132	
Macao,	5	
Newport News,	10	
Rosen,	47	
Santos,	100	
Samarang,	114	
Shanghai,	35	
Singapore,	30 t.	
Sourabaya,	35	
Sydney, 9 pkgs.	60	10 8
Valparaiso,	125	
Yokohama,	160	
Chemicals (otherwise undescribed)		
Alexandria,	1 t.	£37
Genoa,	10 c.	19
New York,	1	5 13
Bahia,	1	1 q. 9
Kurrachee,	18	33
Mersyne,	12	22
Volo,	3	5
Naples,	1	37
Genoa,	10	18
Odessa,	6	232
China Clay—		
Barcelona,	20 t.	
Bilibao,	30	
Valencia,	100 bgs.	
Coal Products—		
Aniline Colours		
Bombay,	6 cs.	
Aniline Oil		
Genoa,	6 dms.	
Newport News,	9	
St. Nazaire,	2	
Aniline Salts		
Boston,	12 cks.	23 cs.
St. Nazaire,	10	
Anthracene		
Rotterdam,	100 brls.	
Pitch		
New York,	25 cks.	
Tar		
Guayaquil,	50 dms.	
Cobalt—		
Nagasaki,	2 c.	3 q. £68
Copperas—		
Sydney,	5 t.	£8
Copper Sulphate—		
Bordeaux,	372 t.	17 c. £5,602
Rosen,	60	3 1 q. 906
Odessa,	2	31
Smyrna,	1	4 17
Bombay,	5	75
Sydney,	5	73
Freemantle,	2	30
Constantinople,	1	5 18
Genoa,	9	3 8
Nantes,	65	5 3 1,166
Lisbon,	10	3 2 146
Patras,	14	10
Almeria,	5	2 78
Hamburg,	1	4 3 18
Aleppo,	13	2 10
Disinfectants—		
Oporto,	1 t.	18 c. £8
Bombay,	2	10 24
Guano—		
Las Palmas,	2 t.	£7
Guano Phosphate—		
Hamburg,	32 t.	5 c. 2 q. £161
Gypsum—		
New York,	35 t.	19 c. £134
Iron Oxide—		
Callao,	12 t.	3 q. £33
Lime—		
Accra,	9 t.	10 c. £22
Magnesia—		
New York,	1 cs.	
Rosario,	7	
Magnesium—		
Bombay,	39 t.	3 c. £95
Magnesium Chloride—		
Bombay,	1 t.	15 c. £25

Magnesium Sulphate—		
Pernambuco,	5 t.	3 c. £23
Manure—		
Havana,	2 t.	£59
New York,	83	1,109
Hordeaux,	150	7 c. 447
Gd. Canary,	1	2 q. 4
Ochre—		
Pernambuco,	5 kgs.	
Oxalic Acid—		
Trieste,	1 t.	2 c. 1 q. £40
Paint—		
Alexandria,	76 dms.	
Amsterdam,	6	7 kgs.
Bahia,		6 cs.
Buenaventura,	25	
Callao,	6 cks.	
Genoa,		11 8 brls.
Guayaquil,	4	25 1 bx. 4
Havana,	3	3 tins
Havre,	1	
Jeremie,	1	
Lagos,	5 dms.	20
Lisbon,	20	40
Malta,		4
Mossamedes,		26
Pisagua, 20 pkgs.		50
Sierra Leone,		10
Teneriffe, 1 ck.		40
Antwerp,		20
Gibraltar,		20
Halifax,		20
O. Calabar, 2		20
Opobo,		20
St. John's, N'd.,		3 cks.
Venice,		6
Painters' Colours—		
Baltimore,	330 cks.	
Belise,	4	105 dms.
Bombay,		432 kgs.
B. Ayres,	100	60 cs. 49 brls
Constantinople,	250	
Macao,	4	198 5
Maracaibo,	2	3
Mollendo,	2	3
M. Video,	3	
Newport News,	75	5 12
New York,	40	
Para,		4
Pernambuco,	11	5 4
Portland,		1
Rosario,	20	
Rotterdam,		2
Salonica,		3
Akassa,	40	
Antwerp,	19	
Barcelona,		2
Boston,		5
Calcutta,	8	
Cornal,		10
Hamburg,	7	15 2 172
Iquique,	7	5 101
Opobo,		5
Shanghai,		101
Paraffin Wax—		
Odessa,	25 pkgs.	
Phosphorus—		
Yokohama,	1 t.	2 c. £20
Hiogo,	1 t.	2 1 q. 280
Pieric Acid—		
N. York,	17 c.	3 q. £80
Potassium Bichromate—		
Volo,	6 c.	£14
Vera Cruz,	1 t.	2 46
Odessa,	1	42
St. Nazaire,	3	1 q. 5
Potassium Carbonate—		
Baltimore,	11 t.	£200
Boston,	9	165
Potassium Chlorate—		
Leghorn,	1 t.	£64
Kalmar,		118
Hamburg,		56
Philadelphia,	6	5 c. 389
Hango,		10 30
Santos,		123
Gothenburg,		2 90
Malmo,		2 118
Sydney,	10	565
Reval,	2	11 140
Boston,	5	300
Shanghai,	4	234
Manaoes,		2 3
Copenhagen,	3	15 228
N. York,	35	15 2,083
Halifax,		3 7
Havana,		5 12
St. Nazaire,		13 46
Cape Town,	1	60
Genoa,		10 29
Hiogo,	22	10 1,183
Resin—		
Rotterdam,	10 brls.	

Salt—		
Adelaide,		14 c.
Antwerp,	260 t.	
Belise,	13	
Benin,	10	
Bonny,	10	
Boston,	122	
B. Ayres,	95	
C. C. Castle,	12	10
Christiania,		
Copenhagen,	558	
Galveston,	500	
Ghent,	250	
Hamburg,	1	
Lagos,	50	
Melbourne,	8	14
Newcastle, NSW,	245	
Newport News,	250	
N. York,	65	
Old Calabar,	34	12
Opobo,	80	17
Para,	75	
Paris,	5	
Portland,	70	
Reval,	10	
St. John's, N'd.,	6	
Salt Pond,	5	
Sierra Leone,	157	10
Warri,	5	
Malta,	5	
Portland,	75	
San Francisco,	1	4
Shanghai,	3	1
Salt Cake—		
Antwerp,	73 t.	
Newport News,	193	2 c. 2 q. £81
Baltimore,	684	6 3 807
Saltpetre—		
Natal,	1 t.	£25
Para,	1	9 c. 2 q. 35
Pernambuco,	5	10 128
Sheep Dip—		
B. Ayres,	9 t.	3 c. £225
Pt. Elizabeth,	18	344
Soap—		
Algoa Bay,	1,750 bxs.	470 cs.
Amsterdam,	25	250
Bombay,		
Calcutta,		500
Cape Town,	7	
Genoa,	30	10 cks.
Melbourne,	704	
Newport News,	200	
New York,	100	25
Para,	34	
Pt. Natal,	20	
Rotterdam,	20	
Salonica,	90	
Trinidad,	20	
Baltimore,	1,500	50
Bordeaux,	70	
Hamburg,	100	30
Rotterdam,		20
S. John's, N'd.,	100	
Tampico,	160	
Sodium Bicarbonate—		
Algoa Bay,	20 kgs.	
Bombay,	50	
Calcutta,	500	
Cape Town,	7	
Genoa,	30	10 cks.
Melbourne,	704	
Newport News,	200	
New York,	100	25
Para,	34	
Pt. Natal,	20	
Rotterdam,	20	
Salonica,	90	
Trinidad,	20	
Baltimore,	1,500	50
Bordeaux,	70	
Hamburg,	100	30
Rotterdam,		20
S. John's, N'd.,	100	
Tampico,	160	
Sodium Carbonate—		
New York,	112 brls.	
Sodium Chlorate—		
Antwerp,	10 kgs.	
Boston,	70	
Hamburg,	120	
Rotterdam,	10	
Sodium Frusiate—		
Boston,	25 cks.	
Sodium Sulphate—		
Boston,	50 brls.	
Stearine—		
New York,	22 cks.	
Sulphur—		
Boston,	220 t.	5 c. £764
Calcutta,	11	65
Lagos,		12 4
Superphosphate—		
Las Palmas,	10 t.	£43
Tartar Salts—		
New York,	5 c.	1 q. £6
Varnish—		
New York,	2 cks.	
B. Ayres,	2 cs.	
M. Video,	3	
White Lead—		
Sierra Leone,	32 kgs.	
Algoa Bay,		125 dms.
Calcutta,	160	
Whiting—		
B. Ayres,	50 brls.	
Zinc Chloride—		
Oporto,	2 t.	6 c. £40
Bombay,	5	4 49
Zinc Crystals—		
St. Nazaire,	5 t.	5 c. £90
Zinc White—		
Mossamedes,	2 cks.	

Soda Ash—			
B. Ayres,	410 brls.		
Cadiz,			4 cks.
Calamata,	25		
Calcutta,		39	
Christiania,		5	
Copenhagen,			516 bgs.
Ghent,		6	
Gothenburg,			100
Halifax,	3		
Melbourne,		373	
Naples,			150
Newport News,			680
New York,	100	18	7,288 98 tcs.
Oporto,		9	
Patras,	35		
Piræus, 10½ t.	70		
Puerto Cabella,		13	
Salonica,	30		
San Francisco,			177
Shanghai,		8	
Stettin,			175
Syra,	50		
Vera Cruz,		13	
Yokohama,		8	
Amsterdam,			500
Antwerp,			200
Baltimore,		441	12,171 349
Boston,		345	2,088 124
Smyrna,			100
Soda Crystals—			
Alexandria,	100 brls.		
Calcutta,		26 kgs.	
Samarang,			25 cks.
Sourabaya,		150	
Boston,	336	140 bgs.	140
St. John's, N'd.,	10		
Sodium Arseniate—			
Boston,	5 cks.		
Sodium Biberate—			
Antwerp,	10 pkgs.		
Genoa,		110 cs.	
Hamburg,	8		
Paris,	10	175 kgs.	
Sodium Bicarbonate—			
Algoa Bay,	20 kgs.		
Bombay,	50		
Calcutta,	500		
Cape Town,	7		
Genoa,	30	10 cks.	
Melbourne,	704		
Newport News,	200		
New York,	100	25	
Para,	34		
Pt. Natal,	20		
Rotterdam,	20		
Salonica,	90		
Trinidad,	20		
Baltimore,	1,500	50	
Bordeaux,	70		
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Boston,	50 brls.		
Stearine—			
New York,	22 cks.		
Sulphur—			
Boston,	220 t.	5 c.	£764
Calcutta,	11		65
Lagos,		12	4
Superphosphate—			
Las Palmas,	10 t.		£43
Tartar Salts—			
New York,		5 c.	1 q. £6
Varnish—			
New York,	2 cks.		
B. Ayres,	2 cs.		
M. Video,	3		
White Lead—			
Sierra Leone,	32 kgs.		
Algoa Bay,		125 dms.	
Calcutta,	160		
Whiting—			
B. Ayres,	50 brls.		
Zinc Chloride—			
Oporto,	2 t.	6 c.	£40
Bombay,	5	4	49
Zinc Crystals—			
St. Nazaire,	5 t.	5 c.	£60
Zinc White—			
Mossamedes,	2 cks.		

MANCHESTER.

Week ending December 20th

Alum —	Rio de Janeiro, 1 ck.
Ammonium Chloride —	Beyrout, 19 cks.
	Barcelona, 13
Aniline Colours —	Rotterdam, 2 cks.
Aniline Oil —	Antwerp, 13 dms.
	Rotterdam, 5 tins.
Carbolic Acid —	Rotterdam, 57 cks.
Caustic Soda —	Alexandria, 60 dms.
Creosote Salts —	Rotterdam, 63 cks.
Disinfectants —	Rotterdam, 2 cs.
Extracts —	Rotterdam, 12 cks.
Paraffin Wax —	Barcelona, 10 bgs.
Phosphorus —	Barcelona, 12 cs.
Pitch —	Dunkirk, 182 t.
	Antwerp, 358½
	Treport, 6 cts
Potassium Bichromate —	Rio de Janeiro, 2 cks.
Soda Crystals —	Alexandria, 30 brls.
Sodium Bicarbonate —	Alexandria, 25 kgs.
	Barcelona, 225
	Treport, 95
Sulphuric Acid —	Rio de Janeiro, 14 btl.
Tallow —	Rotterdam, 1 ck.
Tar —	Treport, 25 cks.
Tar Oil —	Treport, 42 brls.
Tar Salts —	Antwerp, 11 cks.

HULL.

Week ending December 15th.

Ammonium Sulphate —	Antwerp, 287 bgs.
	Ghent, 490
	Rotterdam, 1,047
Aniline Oil —	New York, 52 dms.
Benzol —	Rotterdam, 50 cks.
Bleaching Powder —	Danzig, 75 cks.
	Stettin, 26
Caustic Soda —	Danzig, 120 dms.
	Stettin, 38
Chemicals (otherwise undescribed)	Amsterdam, 45 cks.
	Antwerp, 5 cs.
	Bremen, 1
	Bordeaux, 30
	Christiania, 991 lbs.
	Copenhagen, 28
	Danzig, 14 cks. 4 dms.
	Gothenburg, 12
	Hango, 1
	Harlingen, 10
	Konigsberg, 1
	Hamburg, 47
	New York, 38 cs. 63 pks.
	Rotterdam, 53
	Riga, 2
	Rouen, 26
	Stettin, 8
Cottonseed Oil —	Antwerp, 440 c.
	Bremen, 435
	Hamburg, 1,530
	Rotterdam, 4,142
	Stettin, 200
Creosote —	Gothenburg, 315 cks.

Dyestuffs (otherwise undescribed)

Antwerp, 1 cs. 6 cks.	30 bgs.
Christiania, 4	10
Hamburg, 4	10
New York, 4	10
Riga, 6	11 pks.
Stettin, 6	11 pks.
Linseed Oil —	Bergen, 65 c.
	Christiania, 613
	Christiansand, 103
	Drontheim, 68
	Hamburg, 374
	Rotterdam, 35

Manure—

Gothenburg, 150 t.	800
Harburg, 800	5
Reval, 5	

Mineral White—

Stettin, 100 bgs.	
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Nitro Benzol—

New York, 1 dm.	
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Ochre—

Hamburg, 1 ck.	
Rotterdam, 2	

Painters' Colours—

Amsterdam, 1 pke.	4 cs. 28 cks.
Antwerp, 1	50
Copenhagen, 1	1
Danzig, 1	1
Dunkirk, 1	1
Gothenburg, 1	1
Ghent, 1	1
Konigsberg, 1	1
Hamburg, 1	1
New York, 1	1
Rotterdam, 1	1
Reval, 1	1
Riga, 1	1
Stettin, 1	1

Pitch—

Antwerp, 365 t.	22 c.
Christiania, 19 t.	

Salt—

Drontheim, 19 t.	
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Soap—

Copenhagen, 1 cs.	
Hamburg, 1	

Tallow—

Gothenburg, 5 cks.	
Rotterdam, 34	

Tar—

Amsterdam, 5 cks.	
Danzig, 1	
Hamburg, 1	
Reval, 1	

Varnish—

Antwerp, 1 ck. 1 dm.	
Ghent, 1	
Hamburg, 1	
Reval, 1	

GLASGOW.

Week ending December 20th.

Ammonium Sulphate —	10 t.	£113
	Marseilles, 23	4½ c. 255
	Italy, 51	2¾ 560
Bleaching Powder —	Calcutta, 75 t.	£807
	Melbourne, 10	110
Boracic Acid —	Adelaide, 1 t.	£31
Borax —	Japan, 2 t. 19½ c.	£59
	Lisbon, 1	43
Coal Products —		
Creosote Oil	Lisbon, 74 t.	£210
Naphtha	Marseilles, 9 t. 14½ c.	£135
Pitch	Italy, 1,108 t. 18 c.	£1,438
	New York, 11	5
	Antwerp, 100	13
	Hamburg, 57	67
	Chili, 51	18½
	Bombay, 23	15
Tar	Bombay, 354 cks. 30 t.	5 c. £369
Tar Oil	Hamburg, 2 dms.	£37
Copperas —	Bombay, 51 t. 6 c.	£116
Dyestuffs —		
Extracts	Sydney, 1 t. 15 c.	£24
	Brisbane, 2	18½ 40

Logwood

Halifax, N.S., 10 t. 11 c.	£87. 105
Brisbane, 4	5
Lisbon, 3	14½

Patent Indigo

Melbourne, 1 t. 4½ c.	£46
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Farina—

Antwerp, 2 t. 9 c.	£26
Philadelphia, 4	52
Rio de Janeiro, 2	6½ 23

Glucose—

New York, 373 glns.	£83. 198
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Linseed Oil—

Gibraltar, 18½ c.	£28
Halifax, N.S., 8 t. 11½	225

Litharge—

Adelaide, 1 t. 1½ c.	£30
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Magnesium Sulphate—

Christiania, 10 t.	£31
Rio de Janeiro, 10	11½ c. 50

Manganese—

Antwerp, 2 t. 13½ c.	£21
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Paint—

Gibraltar, 3 t. 3½ c.	£68
Bombay, 5	75
Sydney, 208	20
Melbourne, 4	13½
M. Video, 4	13½

Painters' Colours—

Hong Kong, 2 t. 15 c.	£34. 128.
Bombay, 4½	£58
Sydney, 6	6½ 106

Paraffin Wax—

Italy, 69 t. 18½ c.	£2,108
Antwerp, 1	9½ 34
Bilbao, 1	14 50

Potassium Bichromate—

Italy, 9 t. 3½ c.	£364
Halifax, N.S., 4	3
Bombay, 1	1½ 43
Antwerp, 4	19½ 198
Rouen, 20	16½ 932

Salt—

Lisbon, 8½ c.	£20
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Slag—

Christiania, 1 t.	£9
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Soap—

Shanghai, 2 t. 10 c.	£31
New York, 6	17
	105

Sodium Bichromate—

Italy, 6 t. 12½ c.	£211
Halifax, N.S., 1	17 61

Tallow—

Christiania, 6 c.	£8
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Waste Salt—

Hamburg, 10 bgs.	£8
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White Lead—

Italy, 2 t. 1½ c.	£23
Sydney, 16	19 350

TYNE.

Week ending December 15th.

Alkali —		
Gothenburg, 2 t. 7 c.		
Rotterdam, 1	9	
Genoa, 2	2	
Amsterdam, 89	10	
Alum —	San Francisco, 15 t. 2 c.	
Ammonia —	Aarhuus, 5 c.	
Ammonium Sulphate —	Valencia, 50 t.	
Antimony —	Christiania, 1 t. 6 c.	
Arsenic —	Rotterdam, 1 t. 1	
Asbestos —	Stockholm, 11 t.	
Barytes —	Reval, 12 t.	
Blanc Fixe —	Antwerp, 2 t. 3 c.	
Bleaching Powder —	Antwerp, 43 t. 6 c.	
	Christiania, 40	2
	Nykjobing, 12	1
	Rotterdam, 26	10
	Odense, 3	14
	Lisbon, 5	
	Bergen, 4	18
	Drontheim, 10	
	Genoa, 3	1
	Reval, 40	7
	Amsterdam, 75	4
	Gothenburg, 29	9

Caustic Soda—

Barcelona, 30 t. 5 c.	
Antwerp, 16	8
Christiania, 2	18
Rotterdam, 16	4
Aarhuus, 4	4
Genoa, 64	3
Amsterdam, 23	
Gothenburg, 50	2

Iron Oxide—

Hamburg, 10 t. 3 c.	
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Litharge—

Hamburg, 9 c.	
Antwerp, 12	
Christiania, 5 t. 17	
Stockholm, 8	17

Magnesia—

Valencia, 1 t.	
Barcelona, 11	10 c. 1
Hamburg, 1	

Paint—

Antwerp, 2 c.	
Genoa, 9 t. 1	

Painters' Colours—

Antwerp, 3 qrs.	
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Slag—

Rotterdam, 90 t.	
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Soda—

Christiania, 10 t. 6 c.	
Nykjobing, 6	9
Rotterdam, 32	3
Amsterdam, 110	19
Stockholm, 23	15
Genoa, 41	4

Soda Ash—

Gothenburg, 6 t. 15 c.	
Lisbon, 41	5
Bergen, 5	
Stockholm, 15	1

Sodium Hyposulphite—

Copenhagen, 50 t. 13 c.	
San Francisco, 50 t.	
Rotterdam, 15	

Sulphur—

Gothenburg, 55 t.	
Copenhagen, 15	

White Lead—

Hamburg, 4 t.	
Lisbon, 5	
Copenhagen, 1	9 c.
Stockholm, 13	

GOOLE.

Week ending December 12th.

Alkali —	Dunkirk, 30 dms.
Benzol —	Boulogne, 79 cks.
Chemicals (otherwise undescribed)	Antwerp, 2 cs.
	Hamburg, 24 cks.
	Rotterdam, 20 dms.
Coal Products (otherwise undes.) —	Antwerp, 2 cks.
	Dunkirk, 52
	Boulogne, 5
	Hamburg, 4
	Rotterdam, 29
Manure —	Boulogne, 69 bgs.
	Hamburg, 224
	Bruges, 200
Pitch —	Antwerp, 918 t.
	Dunkirk, 72
	Rotterdam, 104

GRIMSBY.

Week ending December 15th.

Chemicals (otherwise undescribed)	Antwerp, 1 ck.
	Hamburg, 55
	11 cs. 12 dms.
	Rotterdam, 54 btl.
Coal Products (otherwise undes.) —	Dieppe, 102 cks. 2 cs.
	Malmö, 6
Painters' Colours —	Hamburg, 4 cks. 2 cs.
	Rotterdam, 2
	1 dm.

PRICES CURRENT.

WEDNESDAY, DEC. 26th, 1894.

PREPARED BY MESSRS. HIGGINBOTTOM AND CO., 116, PORTLAND STREET, MANCHESTER.

The values stated are F.O.R. at maker's works, or at usual ports of shipment in U.K. The price in different localities may vary.

Acids:—		£	s.	d.
Acetic, 25 % and 40 %	per cwt.	7/-	&	10/6
Glacial				50/-
Arsenic S.G., 2000°				0 14 6
Fluoric	per lb.	0 0		3 3/4
Muriatic (Tower Salts), 30° Tw.	per bottle	0 0		10
(Cylinder), 30° Tw.		0 3		0
Nitric 80° Tw.	per lb.	0 0		13 3/4
Nitrous		0 0		13 3/4
Oxalic	nett	0 0		3 3/4
Phosphoric, 1750°		0 0		11
Picric		0 1		0
Sulphuric (fuming 50 %)	per ton	15 10		0
(monohydrate)		5 10		0
(Pyrites, 168°)		3 0		0
(free from arsenic, 145°)		1 5		0
Sulphurous (solution) S.G. 1025		3 0		0
Tannic (pure)	per lb.	0 1		0
Tartaric		0 0		11
Arsenic, white powdered	nett per ton	14 7		6
Alum (loose lump)		4 17		6
Alumina Sulphate (pure)		4 17		6
Aluminoferrous		2 7		6
Aluminium	per lb.	0 3		0
Ammonia, Anhydrous		0 1		4
" 880=28° B.	per lb.	0 0		3
" =24° B.		0 0		2 3/4
Carbonate	nett	0 0		3 3/4
Muriate	per ton	23 10		0
(sal-ammoniac) 1st & 2nd	per cwt.	39/-	&	37/-
Nitrate	per ton	41 0		0
Phosphate	per lb.	0 0		10 3/4
Sulphate (grey) London	per ton	11 0		0
(grey) Hull		11 0		0
Aniline Oil (pure)	per lb.	0 0		5 3/4
Aniline Salt		0 0		4 3/4
Antimony	per ton	33 5		0
(tartar emetic)	per lb.	0 0		9 3/4
(golden sulphide)		0 0		10
Barium Chloride	per ton	6 10		0
Carbonate (native)		3 5		0
Sulphate (native levigated)		45/-	&	75/-
Bleaching Powder, 35 %	nett	7 5		0
Liquor, 7 %		3 10		0
Bisulphide of Carbon		11 5		0
Chromium Acetate (crystal)	per lb.	0 0		6
Calcium Chloride	per ton	2 2		6
China Clay (at Runcorn) in bulk		17/6	&	30/-
Coal Tar Products and Dyes:—				
Alizarine (artificial) 20 %	net per lb.	0 0		8
Magenta		0 3		9
Anthracene, 30 % A, f.o.b. London	per unit per cwt.	0 1		1
Benzol, 90 % nominal	per gallon	0 1		1
50/90		0 1		1
Carbolic Acid (crystallised 40°)	per lb.	0 0		5
(crude 60°)	per gallon	0 1		6
Creosote (ordinary)		0 0		2
(filtered for Lucigen light)		0 0		2 1/2
Crude Naphtha 30 % @ 120° C.		0 0		5 3/4
Grease Oils, 22° Tw.	per ton	2 10		0
Pitch, f.o.b. Liverpool or Garston		1 13		0
Solvent Naphtha, 90 % at 160°	per gallon	0 1		2 1/2
Lucigen and "Wells" Oils		0 0		2 1/2
Copper	per ton	41 7		6
Sulphate		14 15		0
Oxide (copper scales)		39 0		0
Glycerine (crude)		15 0		0
(distilled S.G. 1250°)		41 0		0
Iodine	nett, per oz.	0 0		9
Iron Sulphate (copperas)	per ton	1 5		0
Sulphide (antimony slag)		2 0		0
Lead (sheet) for cash		10 17		6
Litharge Flake (ex ship)		13 10		0
Acetate (white)		24 15		0
brown		15 10		0
Carbonate (white lead) pure		16 0		0
Nitrate		20 0		0
Lime, Acetate (brown)	per ton	6 2		6
(grey)		9 17		6
Magnesium (ribbon and wire)	per oz.	0 2		3
Chloride (ex ship)	per ton	2 10		0
Carbonate	per cwt.	1 17		6
Hydrate	per ton	17 0		0
Sulphate (Epsom Salts)	per ton	3 0		0
Manganese, Sulphate		17 15		0
Borate	per cwt.	2 15		0
Ore, 70 %	per ton	4 5		0
Methylated Spirit, 61° O.P.	per gallon	0 1		10
Naphtha (Wood), Solvent		0 3		0
Miscible, 60° O.P.		0 3		3
Oils:—				
Cotton-seed	per on	19 0		0
Linseed		21 10		0
Petroleum, American	per gallon	0 0		5 1/2
Stearine	per ton	26 0		0
Phosphorus (yellow)	per lb.	0 2		2
(red)		0 2		8
Potassium (metal)	per oz.	0 3		7
Bichromate	nett per lb.	0 0		4 1/2
Carbonate, 90% (ex ship)	per ton	16 15		0
Chlorate	per lb.	0 0		5 1/4
Cyanide, 98%		0 2		2
Hydrate (Caustic Potash) 80/85 %	per ton	21 10		0
(Caustic Potash) 75/80 %		20 0		0
(Caustic Potash) 70/75 %		19 10		0
Nitrate (refined)	per cwt.	1 2		6
Permanganate	per cwt.	3 2		6
Prussiate Yellow	per lb.	0 0		10
Sulphate, 90 % (ex ship)	per ton	9 15		0
Muriate, 80 % (do.)		8 7		6
Silver (metal)	per oz.	0 2		3 1/2
Nitrate		0 2		10
Sodium (metal)	per lb.	0 3		0
Carb. (refined Soda-ash) 48 %	nett per on	4 15		0
(Caustic Soda-ash) 48 %		4 0		0
(Carb. Soda-ash) 48 %		4 0		0
(Alkali) 58 %		4 0		0
(Soda Crystals)		2 5		0
Acetate (ex-ship)		14 5		0
Arseniate, 45 %		11 0		0
Chlorate	per lb.	0 0		7 1/4
Borate (Borax)	net, per ton	20 0		0
Bichromate	per lb.	0 0		3 3/4
Hydrate (77 % Caustic Soda) (f.o.b.) net pr. ton		10 0		0
(74 % Caustic Soda)		9 2		6
(70 % Caustic Soda)		8 2		6
(60 % Caustic Soda)		7 2		6
(60 % Caustic Soda, cream) (f.o.b.)		7 0		0
Bicarbonate		5 12		6
Hyposulphite		5 10		0
Manganate, 30%		16 0		0
Nitrate (95 %) ex-ship Liverpool	per cwt.	0 8		9
Nitrite, 98 %	per ton	29 0		0
Phosphate		15 0		0
Silicate (glass)	per ton	5 2		6
(liquid, 100° Tw.)		4 5		0
Stannate, 40 %	per cwt.	3 2		9
Sulphate (Salt-cake)	per ton	0 17		6
(Glauber's Salts)		1 5		0
Sulphide		8 10		0
Sulphite		5 7		6
Strontium Hydrate, 100%		8 10		0
Sulphocyanide Ammonium, 95 %	per lb.	0 0		7
Barium, 95 %		0 0		5
Potassium		0 0		7 1/2
Sulphur (Flowers)	per ton	7 5		0
(Roll Brimstone)		5 5		0
Brimstone: Best Quality		3 15		0
Superphosphate of Lime (26 %)		2 7		6
Tallow		24 10		0
Tin Crystals	per lb.	0 0		6
English Ingots		65 10		0
Zinc (Spelter)	per ton	14 10		0
Chloride (solution, 100° Tw.)		5 7		6

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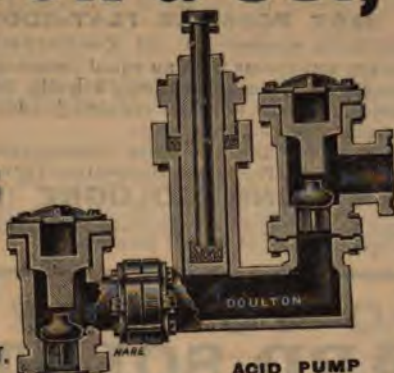
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EJECTORS.

AIR, &c.
EXHAUSTERS.

FAIRBURN & HALL Chief Office } 63, Royal Exchange, MANCHESTER.

Tenders.

CORPORATION OF WEST BROMWICH.
(GAS DEPARTMENT).

TO TAR DISTILLERS.

THE Gas Committee of this Corporation are prepared to receive TENDERS for the purchase of the Surplus TAR made at their Albion Works, West Bromwich, for the period of One, Two, or Three Years, from the 1st of July inst.

Forms of Tender, and particulars as to terms of the contract, may be obtained upon application to the undersigned.

Sealed Tenders, addressed to the Chairman of the Gas Committee, endorsed "Tender for Tar," to be sent to me, not later than the 19th inst.

The Committee do not bind themselves to accept the highest or any Tender.

By order,

THOS. HUDSON,

Secretary.

Town Hall, West Bromwich,
July 5th, 1894.

Miscellaneous.

TO CHEMICAL MANUFACTURERS, TAR
DISTILLERS, AND OTHERS.

TO BE LET OR SOLD by Private
Treaty, the Premises known as THE GLOBE TAR
WORKS, situate in Croft-street, Clayton.

The land comprises an area of 3,500 square yards, or thereabouts, subject to an annual rent of £18, 9s.

There are two large brick-built Wells for Tar and Ammonia Water, and ranges of Buildings suitable for Tar Works, with good Wharf and long frontage to Canal.

The Plant includes Steam Boiler, several Steam Pumps, Tanks, Tar Still, and other requisites.

For further particulars, apply to EDWARD RUSHTON,

SON & KENYON, Auctioneers, Valuers, and Fire Loss Assessors, 13, Norfolk-street, Manchester; or to SUTTON,

ELLIOTT, & TURNBULL, Solicitors, 13, Spring-gardens, Manchester.

TO BE LET OR SOLD by Private
Treaty as a going concern, the valuable and extensive Works and Premises of Messrs. D. Shaw and Co., Manufacturers of Wool Oil, Stearine, Tallow, Soap, Manure etc., and known as THE CLAYTON OIL

WORKS, situate in Croft-street, Clayton, Manchester.

The buildings are very extensive and exceedingly well arranged and adapted for the business; the plant is modern and of the best construction for economical working.

The premises comprise an area of 5,800 square yards, subject to annual rents of £36, 16s. 6d. The Works have a long frontage to the Canal, and Raw Materials, Coals, and Manufactured Products can be brought to and forwarded at cheap rates. The Stock-in-trade to be taken over at a valuation.

Further particulars of the property and machinery may be had from EDWARD RUSHTON, SON & KENYON, Auctioneers, Valuers, and Fire Loss Assessors, 13, Norfolk-street, Manchester; or from SUTTON, ELLIOTT, & TURNBULL, Solicitors, 13, Spring-gardens, Manchester.

WANTED, for large old-established

Chemical Works, in Scotland, a thoroughly practical active MAN to assist Manager. Must have experience in the upkeep and erection of buildings, and of alkali plant, and the management of men. None but thoroughly experienced and reliable practical men, who are prepared to devote their whole time and attention to the work, need apply. Reply in writing in first instance, stating age, experience, and salary expected, which will be treated in confidence, to F.S., 918, Chemical Trade Journal Office, Manchester.

WANTED.—SITUATION by a

Young Man; experienced, practical chemist; Fellow Institute of Chemistry; understands management of men and works. Good testimonials from past employers; moderate salary; anxious for an engagement.—A.B., 894, Chemical Trade Journal Office, Manchester.

TAR DISTILLERY.—Wanted

SITUATION as Manager and Chemist; 10 years' practical experience in the Distillation of Tar and the separation of the products therefrom; also in the Erection of Plant of the most modern construction.—Address, "Alpha," Chemical Trade Journal Office, Manchester.

ULTRAMARINE.—Wanted, the

Address of CHEMIST or WORKMAN, now resident in England, who has been engaged in the making of Ultramarine on the Continent.—Address, "Ultramarine," Chemical Trade Journal Office, Manchester.

TO CHEMICAL WORKS OR

SMELTING WORKS.—A Cambridge Graduate (Special Merit in Chemistry), desires an ENGAGEMENT, with opening.—Reply by letter to "Chemist," c/o Darbishire, Tatham and Worthington, Solicitors, Manchester.

Miscellaneous.—Cont.

TECHNICAL CHEMIST (Ph.D.), holding diploma of Polytechnic School, wants to change situation. Eleven years' practical experience in large works in the manufacture of Acids, Alkali, Ammonia, Alumina Products, Mordants for dye works, etc.; also experience in the extraction and smelting of copper.—Apply, B.C.; *Chemical Trade Journal Office*, Manchester.

WANTED, for Manchester District, Druggist, Sundryman, or Drysalter, to take up Disinfectant Agency for London Firm. Liberal terms. Apply 'Druggist,' *Chemical Trade Journal Office*, Manchester.

BILL DISCOUNTING.—Good Trade Bills taken promptly, at reasonable rates. Applications treated confidentially.—Atkins, Imperial Buildings, Leicester.

BILL DISCOUNTING.—A Gentleman who has done a large financial business in London and the Provinces for many years, is open to arrange with firms who can introduce good Trade Bills at reasonable rates.—"Rex," *Chemical Trade Journal Office*, Manchester.

FOR SALE, small WORKS in Lancashire; making Soda Crystals, Boiler Fluid, etc. Proprietor wishing to retire, will take about £150., or would admit active man into partnership.—Address, D.K. *Chemical Trade Journal Office*, Manchester.

SMALL GAS EXHAUSTER and ENGINE, complete: WANTED.—Brotherton and Co., Commercial-buildings, Leeds.

FILTER PRESSES For Sale (3); very cheap and in good condition. Can be seen at 24, Grays Inn-road, London, W.C.; R. W. Andrews and Co.

TO CHEMICAL MANUFACTURERS AND OTHERS. Chemical Plumbers and Lead Burners supplied to any part of the world.—Apply, Secretary, Canning Town Lodge, 324, Barking Road, London, E.

OLIVOLINE and ATEROLINE. Two perfect non-gumming Lubricating Oils, 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

SECOND-HAND MACHINERY FOR SALE.—One Copper Vacuum Pan, about 4ft. 6in. diameter; a Pair of Granite Edge Runners, about 4ft. 6in. diameter by 14in. wide, with bed stone, etc., and gearing complete; One Grain Converter; several Screw Presses, Engines, Boilers, Tanks, Steam Pumps, Oak and Fir Vats, etc.—Apply to Henry Roberts and Co., Crown Works, Bancroft Road, Mile End, London, E.

VATS, Squares, Rounds, Chemical Baths, and every description of Wooden Vessel new and second-hand.—Henry Roberts and Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

DISINTEGRATORS.—A New Machine for £10., guaranteed second to none. Also Mortar Mill, 5ft. 6in. pan; new; for £24. A 10 x 6 New Stone Breaker, for £28.; larger sizes in proportion, or can be had on hire, with option of purchase.—S. Mason and Co., Stone Breaking and Grinding Machine Makers, Brandon-street, Leicester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes, with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

Advertisements which arrive too late for insertion on this page will be found on first page of Matter (opposite Leading Article).

HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first *Chemical Trade Journal* of each month.

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IS THE BEST POSSIBLE FLAT-ROOFING.

Adopted with uniform success in all Continental Countries.

It ensures dry and healthy top-rooms with an equal temperature, and is specially adapted for Factories, Warehouses, Offices, Barracks, Schools, Shops, etc. Absolutely watertight, snow and fireproof. Never requires repainting, and can be used in every climate for all purposes.—Agents Wanted Everywhere.

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Full Particulars and Estimates Free on application.—AGENTS WANTED.

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In Manchester, a Vulcanite Cement Roofing is on the new Offices and Chemical Laboratory of Messrs. Peter Spence & Sons, Manchester Alum Works.

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If so, write to us for our latest circular and price list, we guarantee all to be absolutely correct. CATALOGUE FREE ON APPLICATION.

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Special Prices quoted to Large Consumers. Price List on application to

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TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER, Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN, MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER. Sole Maker of MILBURN'S Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry. Works and Warehouses: Back Church Lane. Parcel Dept.: Basement of the Corn Exchange.

31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,**CARBOYS.**

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street S.O.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKER'S PATENT
AIR COMPRESSING ENGINES.
GAS COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

WALKER'S PATENT
EXHAUST AND BLAST FANS.
RIVER POLLUTION

DYERS, CALICO PRINTERS, AND OTHERS
Can readily PURIFY THEIR WASTE WATERS by the simple and inexpensive
ALUMINOFERRIC PROCESS.

Full Particulars on application to—
PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
3, EASTCHEAP, LONDON, E.C.
IMPORTERS OF

PUREST SULPHATE OF ALUMINA.
FLUORIDE OF CHROME (Patented). ANTIMONY SALTS.
CRYSTAL ALUM. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
ZINC OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

SPECIALITIES:—

SODA ASH 58%	Phosphoric Acid	Castor Oil	Amidol, Metol, Glycin,
POTASHES	Acetates	Olive Oil	Thiocarbamid and other
SALTCAKE	Oxalic Acid	Essent. Oils	Photographicals,
BLEACH	Tartaric Acid	Glucose	Lumieres,
LITHIA SALTS	Sulphuric Acid	Grape Sugar	Dry Plates,
BORAX	Carbolic Acid	Cane Syrup	&c., &c.
MERCURIALS	Camphor	Treacle	
SUL. COPPER	Stearine	Nitrate of Silver	(Pure)
PRUSSIANES	Glycerine		
CYANIDES	OLEINE		
METALS			
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FUERST BROS.
FOR ALL HEAVY OR FINE CHEMICALS,
Pharmaceutical Products,
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Drysalteries and Drugs,
Also OILS and PRODUCE.
LONDON: 17, Philip Lane, E.C. and 2 & 4, Stone Street, NEW YORK.
SAMPLER AND PRICES ON APPLICATION.

Tenders.

COUNTY BOROUGH OF WIGAN.

TO TAR DISTILLERS AND OTHERS.

THE Gas Committee of the Wigan Corporation invite TENDERS for the surplus TAR produced at their Gas Works over a period of one, two, or three years, commencing on the 1st of September, 1894.

Particulars and form of Tender may be obtained on application to the undersigned.

The highest Tender not necessarily accepted. Tenders, sealed and endorsed "Tar," to be delivered to A. SMITH, Esq., Town Clerk, on or before August 14th next ensuing.

JOS. TIMMINS,
Engineer, etc.

Borough Gas Works,
Wigan, July 26th, 1894.

LEIGH LOCAL BOARD.

THE Gas Committee of the Leigh Local Board invite TENDERS for the purchase of the SURPLUS TAR produced at their Gas Works, for a period of One Year, from the 1st of September next.

All particulars with form of Tender may be had from the undersigned.

Sealed Tenders endorsed "Tar," and addressed to the Chairman of the Gas Committee, to be delivered at the Town Hall, Leigh, on or before Monday, the 13th of August next.

The highest or any Tender not necessarily accepted.

ALFRED T. FLETCHER,
Engineer and Manager.

Gas Works, Leigh, Lancashire,
July 31st, 1894.

BOROUGH OF HEYWOOD.

THE Gas Committee invite Tenders for the supply of about 120 Tons of SULPHURIC ACID suitable for making Sulphate of Ammonia.

Specification and form of Tender may be had on application to Mr. W. Whatmough, Gas Manager.

Contractors tendering for this work, must pay their workpeople at least the standard or trade-union rate of wages, and observe the trade conditions which attach to the various kinds of work for which the Tender is sent in.

Tenders endorsed "Acid," to be sent to the undersigned, not later than Tuesday, August 14th, 1894.

By order,
A. B. PILLING,
Town Clerk.

Municipal Buildings, Heywood,
August 1st, 1894.

Miscellaneous.

Replies to Advertisements addressed to the "Chemical Trade Journal" Office are forwarded to Advertisers, post free.

PATENTS, DESIGNS, AND TRADE MARKS
ACTS, 1883—1888.

NOTICE is hereby given that ROWLAND MATTHEWS, of 72, Bishopsgate Street Within, London, and FRANCIS HENRY AUGUSTUS BELL, of 15, Queen Street, Queen Victoria Street, London, aforesaid, have applied for leave to amend the Specification of the Letters Patent No. 20821 of 1892, granted to Rowland Matthews and James Lead for "Improvements in the manufacture of white lead and colored pigments." Particulars of the proposed amendments were set forth in the *Illustrated Official Journal* (Patents) issued on the 25th July, 1894.

Any person or persons may give notice (on Form G) at the Patent Office, 25, Southampton Buildings, London, W.C., of opposition to the amendment, within one calendar month from the date of the said Journal.

(Signed) H. READER LACK,
Comptroller General.

Jensen and Son,
77, Chancery Lane London, W.C.,
Agents for the applicants.

TECHNICAL CHEMIST (Ph.D.), holding diploma of Polytechnic School, wants to change situation. Eleven years' practical experience in large works in the manufacture of Acids, Alkali, Ammonia, Alumina Products, Mordants for dye works, etc.; also experience in the extraction and smelting of copper.—Apply, B.C. Chemical Trade Journal Office, Manchester.

TAR DISTILLERY.—Wanted SITUATION as Manager and Chemist; 10 years' practical experience in the Distillation of Tar and the separation of the products therefrom; also in the Erection of Plant of the most modern construction.—Address, "Alpha," Chemical Trade Journal Office, Manchester.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

Under a Deed of Assignment.—Re Thomas Robinson and Sons, Clayton Chemical Works, Clayton, Manchester.—To Chemical Manufacturers, Brokers, and Others.

WHEATLEY KIRK, PRICE, & GOULTY are instructed by the Trustee to **SELL BY PUBLIC AUCTION**, on Wednesday, 8th August, 1894, commencing at 11 o'clock prompt, at the Works, the **FREEHOLD LAND and BUILDINGS** forming the Clayton Chemical Works, Clayton, Manchester, containing 4,100 square yards or thereabouts; the Dwelling-house and Land, containing 306 square yards or thereabouts; the whole of the Plant, Machinery, and Effects therein, in detail, comprising one 21ft. by 6ft. Galloway boiler, one 12ft. by 4ft. 6in. Cornish Boiler, two 22in. cylinder horizontal and three vertical engines; two 3in., two 3½in., and one 6in. ram pumps, by Cameron and Pearn; iron liquor plant, two logwood burners and one logwood dryer; charcoal grinding plant, with two loam and five blacking mills; coal grinding plant, with disintegrator, screen, elevator, and fan; three condensers, with tin and copper coils; three stills, with lead worms; wood vats, large quantity of 40-gallon to 250-gallon casks; cast and wrought iron tanks, 2-ton portable jib crane, 10-ton lorry weighing machine, office furniture, contents of laboratory, smithy, and repairing shop, eight luries and four carts, and other effects.—Plan, particulars, and catalogues can be obtained gratis on application to the Trustee, M. Ormerod, Esq., 46, Brown-street, Manchester; the Auctioneers, Albert Square, Manchester, and 49, Queen Victoria-street, London; or from G. Cecil Roberts, Esq., solicitor, 5, John Dalton-street, Manchester, at which last-mentioned office an abstract of the deed of 21st June, 1873, and conditions of sale of land and buildings will be open for inspection three days before the sale.

B.Sc. (Honours Chemistry) four years' training in College Laboratory, wishes for **PLACE as CHEMIST**, in Works; small salary accepted.—Address, "Alpha," *Chemical Trade Journal Office*, Manchester.

MANURES AND FEEDING STUFFS.—Gentleman with considerable experience and thorough knowledge of above, is open for engagement as **TRAVELLER**, Secretary, or other position of trust.—Address, "Azote," *Chemical Trade Journal Office*, Manchester.

PLUMBER, young, wants **SITUATION**; good references.—Apply, "Plumber," *Chemical Trade Journal Office*, Manchester.

FOR SALE, small **WORKS** in Lancashire; making Soda Crystals, Boiler Fluid, etc. Proprietor wishing to retire, will take about £150., or would admit active man into partnership.—Address, D.K., *Chemical Trade Journal Office*, Manchester.

ON SALE.—Two Filter Presses, one by Dehne, one William Allen; one Disintegrator by J. Harrison Carter.—Address, "Colours," *Chemical Trade Journal Office*, Manchester.

WANTED, by an old-established Firm, foreign brands of White Sugar of Lead, Citric and Tartaric Acids, Tartar Emetic, etc., etc., and all Drysalteries used by Calico Printers and Dyers.—Particulars to J. L., 949, *Chemical Trade Journal*.

WANTED.—**COPPER PRECIPITATE** or **COPPER** containing Materials.—Offers to B.M. 915, *Chemical Trade Journal Office*, Manchester.

SEWAGE PRECIPITATION.—Large quantities and regular supplies of **GREEN COPPERAS** for Sale.—Corrugated Iron Co., Limited, Wolverhampton.

SMALL GAS EXHAUSTER and ENGINE, complete: **WANTED**.—Brotherton and Co., Commercial-buildings, Leeds.

CYANIDES.—Wanted Particulars of Manufacture from Gas Liquor and Spent Oxide; communications treated confidential.—Mr. Brotherton, Commercial Buildings, Leeds.

ON SALE.—Beer Hogsheads, Oil Barrels, Rum Puncheons, Butts.—P. Hickey, St. Oswald Street Coopers, Rochdale Road, Manchester.

TO CHEMICAL MANUFACTURERS AND OTHERS. Chemical Plumbers and Lead Burners supplied to any part of the world.—Apply, Secretary, Canning Town Lodge, 324, Barking Road, London, E.

DO YOU USE STANDARD SOLUTIONS?

If so, write to us for our latest circular and price list, we guarantee all to be absolutely correct.
CATALOGUE FREE ON APPLICATION.

PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.
Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

STONEWARE ACID PANS, COCKS, RECEIVERS, &c.
JAS. STIFF & SONS,
LAMBETH, LONDON, S.E.,
MANUFACTURE EVERY KIND OF VITRIFIED STONEWARE,
CHEMICAL APPARATUS,
INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES, JARS,
CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLES.

PURE SULPHUROUS ACID,
SULPHITES AND BISULPHITES OF LIME, SODA, &c.
FOR EXPORT.

S. KEYS & CO. Limited, WEST BROMWICH.

ACCURATE STANDARD SOLUTIONS.

MR. FRANCIS SUTTON, F.I.C., F.C.S., has a Special Laboratory for the Manufacture of these Solutions for every variety of Analysis by Volumetric Methods, and on any system of Measurement; also Indicators, Test Papers, and all requisites.

Special Prices quoted to Large Consumers. Price List on application to

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TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.
COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN, MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER.
Sole Maker of **MILBURN'S** Patent Conoidal Stone Grinding Mills.
Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:
Back Church Lane. Parcel Dept.: Basement of the Corn Exchange.

31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SNERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

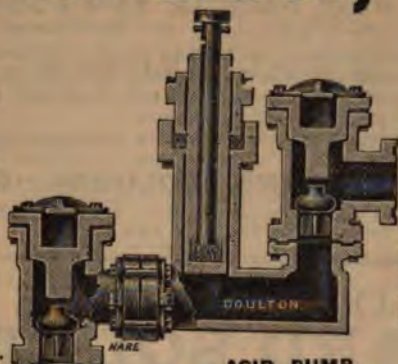
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LAMBETH,

LONDON, S.E.

MANUFACTURERS OF
**STONEWARE
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APPARATUS**
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**IMPROVED
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Each Pump prior to
leaving the Factory
is put into actual
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**SPENCE'S
LUMP ALUM**

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.

Also PURE SULPHATE OF ALUMINA and ALUMINOFERRIC.

PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

BLAYDON MANURE AND ALKALI COMP'S
**PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.**

UNITED ALKALI COMP'S
HYPO-SULPHITE OF SODA,

WALTHER FELD & CO'S
PURE PRECIP. CARBONATE OF BARYTES 96/98%.

Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.

Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.

OVER 25,000 ARE WORKING.

LIQUOR
RAISERS.BOILING
NOZZLES.SILENT
HEATERS.VACUUM
EJECTORS.AIR, &c.
EXHAUSTERS.

FAIRBURN & HALL Chief Office } 63, Royal Exchange, MANCHESTER.

Tenders.

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Contractors tendering for this work must pay their
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wages, and observe the trade conditions which attach to
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Tenders endorsed "Acid," to be sent to the undersigned,
not later than Tuesday, August 14th, 1894.

By order,

A. B. PILLING,
Town Clerk.

Municipal Buildings, Heywood,
August 1st, 1894.

Miscellaneous.

Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.

TO CHEMISTS & SMELTERS.—

A Gentleman, Graduate of Cambridge in Chemistry,
desires an ENGAGEMENT with prospect of Partner-
ship. Could find £1,000.—Apply by letter to Darbshire,
Tatham, and Worthington, Solicitors, 1, St. James's Square,
Manchester.

MANURES AND FEEDING STUFFS.

GENTLEMAN with considerable
experience and thorough knowledge of above, is
open for ENGAGEMENT as Traveller, Secretary, or
other position of trust.—Address, "Azote," Chemical
Trade Journal Office, Manchester.

PARTNERSHIP.—Analyst with

Capital, desires to INVEST in a BUSINESS where
Chemical knowledge would be useful. Young and with
some business experience; home or abroad.—Address,
"Commerce," Chemical Trade Journal Office, Man-
chester.

TECHNICAL CHEMIST (Ph.D.),

holding diploma of Polytechnic School, wants
to change situation. Eleven years' practical experience
in large works in the manufacture of Acids, Alkali,
Ammonia, Alumina Products, Mordants for dye works,
etc.; also experience in the extraction and smelting of
copper.—Apply, B.C., Chemical Trade Journal Office,
Manchester.

B. Sc. (Honours Chemistry) four

years' training in College Laboratory, wishes for
PLACE as CHEMIST, in Works; small salary accepted.
—Address, "Alpha," Chemical Trade Journal Office,
Manchester.

PLUMBER, young, wants SITUA-

TION; good references.—Apply, "Plumber,"
Chemical Trade Journal Office, Manchester.

FOR SALE, small WORKS in Lan-

cashire; making Soda Crystals, Boiler Fluid, etc.
Proprietor wishing to retire, will take about £150., or
would admit active man into partnership.—Address, D. K.
Chemical Trade Journal Office, Manchester.

SMALL GAS EXHAUSTER and

ENGINE, complete: WANTED.—Brotherton and
Co., Commercial-buildings, Leeds.

CYANIDES.—Wanted Particulars

of Manufacture from Gas Liquor and Spent Oxide;
communications treated confidential.—Mr. Brotherton,
Commercial Buildings, Leeds.

TO CHEMICAL MANU-

FACTURERS AND OTHERS. Chemical
Plumbers and Lead Burners supplied to any part of the
world.—Apply, Secretary, Canning Town Lodge, 324,
Barking Road, London, E.

OLIVOLINE and ATEROLINE.

Two perfect non-gumming Lubricating Oils. 20
years in use. Made to suit every class of machinery
ashore or afloat. Gentlemen who can influence business
are offered liberal terms. Sole Makers, DUNCAN, WATSON
& Co., Oil Manufacturers and Mill Furnishers, Dashwood
House, New Broad-street, London, E.C.

Miscellaneous.—Cont**SECOND-HAND MACHINERY**

FOR SALE.—One Copper Vacuum Pan, about 4ft. 6in. diameter; a Pair of Granite Edge Runners, about 4ft. 6in. diameter by 14in. wide, with bed stone, etc., and gearing complete; One Grain Converter; several Screw Presses, Engines, Boilers, Tanks, Steam Pumps, Oak and Fir Vats, etc.—Apply to Henry Roberts and Co., Crown Works, Bancroft Road, Mile End, London, E.

VATS, Squares, Rounds, Chemical Baths, and every description of Wooden Vessel new and second-hand.—Henry Roberts and Co., Coopers and Vat Makers, Bancroft Road, Mile End, London, E.

DISINTEGRATORS.—A New

Machine for £12., guaranteed second to none, with 18 inch grinding chamber. Also Mortar Mill, 5ft. 6in. pan; for £24. A 10 x 6 New Stone Breaker, for £28.; larger sizes in proportion, or can be had on hire, with option of purchase.—S. Mason and Co., Stone Breaking and Grinding Machine Makers, Brandon-street, Leicester.

TO BE SOLD, the LANCASHIRE MANURE COMPANY'S WORKS at Widnes, with Machinery and 24,420 square yards of Freehold Land.—Address J. Hosking, 16, Fenwick Street, Liverpool.

SULPHATE of Lime, calcined, For Sale, cheap, in large and regular quantities.—Address Sadler & Co., Limited, Middlesbrough.

AMMONIA, all qualities and strengths. Enquiries solicited. BROTHERTON & Co., Birmingham, Leeds, and Wakefield.

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HARPER'S LIST

OF ACCESSORIES for the TRANSMISSION of POWER, viz.:—BELT PULLEYS, ROPE PULLEYS, GEAR WHEELS, SHAFTING, COUPLINGS, PEDESTALS, FIXINGS; appears on Pages 14 and 15 of the first *Chemical Trade Journal* of each month.

CONTINENTAL BUSINESS.

Negotiations in **CHEMICAL PRODUCTS** efficiently conducted. Special attention to **SULPHATE OF AMMONIA.**

FRED. L. BROTHERTON, HAMBURG.
Consignments worked. Correspondence solicited.

LAMP BLACK And other **BLACKS**
Loose and in
Packets
for Home and
Export.

JAMES DRINKWATER,
Springfield Lane Chemical Works,
SALFORD,
MANCHESTER.
Instantaneous
Drying
Black Varnish.

WM. JANCKE,
ANTWERP (BELGIUM.)

SPECIALITIES:—
Lump Alum. Sulphate of Alumina.
Bleaching Powder.
Carb. and Caustic Potash.
CHLORIDE OF BARIUM.

SUPERIOR SALT FOR SALE.

Gargoes 500 tons and upwards, 15/- per ton c.f. and 1 to safe U.K. or Continental Ports.
Further Particulars, Samples, and Special Quotations for Large Quantities, on application to
THOMAS RAISON & CO.,
117, LEADENHALL STREET, LONDON, E.C.

HAEUSLER'S PATENT VULCANITE CEMENT ROOFING

IS THE BEST POSSIBLE FLAT-ROOFING.

Adopted with uniform success in all Continental Countries.

It ensures dry and healthy top-rooms with an equal temperature, and is specially adapted for Factories, Warehouses, Offices, Barracks, Schools, Shops, etc. Absolutely watertight, snow and fireproof. Never requires repairing, and can be used in every climate for all purposes.—Agents Wanted Everywhere.

Contracts entered into for the complete Construction of Roofs.

Full Particulars and Estimates Free on application.—AGENTS WANTED.

C. F. BEER, SONS, COLOGNE (Rhine).

In Manchester, a Vulcanite Cement Roofing is on the new Offices and Chemical Laboratory of Messrs. Peter Spence & Sons, Manchester Alum Works.

DO YOU USE STANDARD SOLUTIONS?

If so, write to us for our latest circular and price list, we guarantee all to be absolutely correct. CATALOGUE FREE ON APPLICATION.

PHILIP HARRIS & CO., Ltd., 144 and 146, Edmund Street, BIRMINGHAM.

Contractors to the Admiralty, Indian, Canadian, and Tasmanian Governments, &c., &c.

PURE SULPHUROUS ACID,
SULPHITES and BISULPHITES of LIME, SODA, &c.
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ACCURATE STANDARD SOLUTIONS.

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Special Prices quoted to Large Consumers. Price List on application to

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TUBES

IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter. **COILS** for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

JOHN SPENCER,
Globe Tube Works, Wednesbury, and 14, Great St. Thomas Apostle, Cannon-st., London, E.C.

BRYAN CORCORAN,
MILLSTONE BUILDER,

WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER.
Sole Maker of **MILBURN'S** Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:
Back Church Lane. Parcel Dept.: Basement of the Corn Exchange.
31, MARK LANE, LONDON.

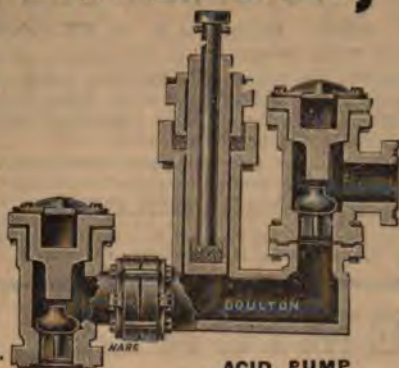
CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street E.C.

DOULTON & CO.,LAMBETH,
LONDON, S.E.MANUFACTURERS OF
**STONEWARE
CHEMICAL
APPARATUS**
OF
EVERY DESCRIPTION.PRICE LISTS
ON APPLICATION.

ACID PUMP

**IMPROVED
STONEWARE
ACID PUMPS.**Each Pump prior to
leaving the Factory
is put into actual
work and tested.**SHOWROOMS:** 17, Deansgate, Manchester; 100, Soho St., Liverpool;
Granville St., Birmingham; 6, Rue de Paradis, Paris.**SPENCE'S****LUMP ALUM**

(POTASH or AMMONIA).

The Leading Make for nearly Half a Century.**Also PURE SULPHATE OF ALUMINA and ALUMINOFERRIC.****PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.****BLAYDON MANURE AND ALKALI COMP.'S
PURE WHITE SULPHATE OF ALUMINA,
BLANC FIXE, CHLORIDE, NITRATE,
AND SULPHIDE OF BARIUM.****UNITED ALKALI COMP.'S
HYPO-SULPHITE OF SODA,****WALTHER FELD & CO.'S****PURE PRECIP. CARBONATE OF BARYTES 96/98%.**Also Hydrate and Anhydrous Alumina, Chloride and Carbonate of
Alumina, Aluminate of Soda, Hydrate of Barium, &c.**Agents: JULIUS HULSEN & CO., NEWCASTLE-ON-TYNE.****OVER 25,000 ARE WORKING.****LIQUOR
RAISERS.****BOILING
NOZZLES.****SILENT
HEATERS.****VACUUM
EJECTORS.****AIR, &c.
EXHAUSTERS.****FAIRBURN & HALL** Chief Office } **63, Royal Exchange, MANCHESTER.****Tenders.**

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Widnes.Tenders endorsed "Tar" to be delivered to the under-
signed, not later than the 3rd prox.

The highest or any Tender not necessarily accepted.

H. S. OPPENHEIM,
Town Clerk.Town Hall, Widnes,
18, August, 1894.

COUNTY BOROUGH OF STOCKPORT.

GAS DEPARTMENT.

SULPHATE PLANT.

THE Gas Committee are prepared to
Receive TENDERS for the Supply of and Erection
complete of a SULPHATE PLANT at their Portwood
Works.Specifications and all information can be obtained from
the Engineer, Mr. S. Meunier, Millgate Gas Works,
Stockport.Tenders endorsed "Sulphate Plant," and addressed to
the Chairman of the Gas Committee, must be sent in on or
before the 8th day of September next, together with full
detail plans and specification of the particular plant
tendered for, which are to be separately enclosed, and
addressed to the Engineer.No Tender will be accepted without satisfactory proof
that the firm tendering pays the standard rate of wages and
observes the standard number of hours.The Committee do not bind themselves to accept the
lowest or any Tender.By order,
WALTER HYDE,
Town Clerk.

August 18th, 1894.

Miscellaneous.Replies to Advertisements addressed to the
"Chemical Trade Journal" Office are forwarded to
Advertisers, post free.**ADVERTISER (18)**, holding certifi-
cates, 1st Honours Practical and 1st Advanced
Theoretical Inorganic Chemistry, and having knowledge
of Mathematics and Electricity, desires SITUATION
as Assistant CHEMIST.—Address, W. H., *Chemical
Trade Journal Office, Manchester.***TO CHEMISTS & SMELTERS.**—A Gentleman, Graduate of Cambridge in Chemistry,
desires an ENGAGEMENT with prospect of Partner-
ship. Could find £1,000.—Apply by letter to Darbshire,
Tatham, and Worthington, Solicitors, 1, St. James's Square,
Manchester.**MANURES AND FEEDING STUFFS.****GENTLEMAN** with considerable
experience and thorough knowledge of above, is
open for ENGAGEMENT as Traveller, Secretary, or
other position of trust.—Address, "Azote," *Chemical
Trade Journal Office, Manchester.***A YOUNG GERMAN** (of good
education), understanding English, French, and
Book-keeping, with thorough knowledge of wholesale Drug
Business, seeks permanent SITUATION in England.
Good Correspondent; has been articled to one of the
largest wholesale drug and chemical firms in Germany.
Can furnish excellent testimonials and references.—
Address, G. S., Gordon House, Tonbridge, Kent.**TO TAR DISTILLERS.**—WantedSITUATION as MANAGER and CHEMIST;
10 years' practical experience in the Distillation of Tar and
the Separation of Products therefrom; experienced in the
erection of plant of the most modern construction; if re-
quired will undertake office work.—Address, R., *Chemical
Trade Journal Office, Manchester.***SITUATION** required by YOUNGMAN who is an expert Works Chemist; has
managed works; capable of undertaking experimental
work; good testimonials, moderate salary.—Address,
A. B., *Chemical Trade Journal Office, Manchester.***TECHNICAL CHEMIST (Ph.D.),**holding diploma of Polytechnic School, wants
to change situation. Eleven years' practical experience
in large works in the manufacture of Acids, Alkali,
Ammonia, Alumina Products, Mordants for dye works,
etc.; also experience in the extraction and smelting of
copper.—Apply, B.C., *Chemical Trade Journal Office,
Manchester.*

Miscellaneous.—Cont.

BALANCES.—Short beam Oertling (3 years), and rough Becker FOR SALE in London; also several Platinum Basins.—Address, "Forno," Chemical Trade Journal Office, Manchester.

CHALK, Precipitated or Lump, WANTED; must be cheap; state price per ton free on rails, to C. W., Chemical Trade Journal Office, Manchester.

FOR SALE.—Copper Condensers, Distills, etc., used in Wood Distilling.—Mitchel Bros, Manchester-road, Bradford, Yorks.

WANTED.—Small second-hand Iron FILTER PRESS with 12 to 18-inch square chamber space, about 12 plates; in good working order.—Address, "Filter," Chemical Trade Journal Office, Manchester.

FILTER PRESSES FOR SALE.—Six with 33 Cast Iron Plates in each, 25 inches square; Engines, Boilers, Pumps, Hydro-Extractors, &c.—J. W. Martin, 29, Corporation-street, Manchester.

FOR SALE, small WORKS in Lancashire; making Soda Crystals, Boiler Fluid, etc. Proprietor wishing to retire, will take about £150, or would admit active man into partnership.—Address, D.K., Chemical Trade Journal Office, Manchester.

CYANIDES.—Wanted Particulars of Manufacture from Gas Liquor and Spent Oxide; communications treated confidential.—Mr. Brotherton, Commercial Buildings, Leeds.

TO CHEMICAL MANUFACTURERS AND OTHERS. Chemical Plumbers and Lead Burners supplied to any part of the world.—Apply, Secretary, Canning Town Lodge, 324, Barking Road, London, E.

OLIVOLINE and ATEROLINE. Two perfect non-gumming Lubricating Oils. 20 years in use. Made to suit every class of machinery ashore or afloat. Gentlemen who can influence business are offered liberal terms. Sole Makers, DUNCAN, WATSON & Co., Oil Manufacturers and Mill Furnishers, Dashwood House, New Broad-street, London, E.C.

SECOND-HAND MACHINERY FOR SALE.—One Copper Vacuum Pan, about 4ft. 6in. diameter; a Pair of Granite Edge Runners, about 4ft. 6in. diameter by 14in. wide, with bed stone, etc., and gearing complete; One Grain Converter; several Screw Presses, Engines, Boilers, Tanks, Steam Pumps, Oak and Fir Vats, etc.—Apply to Henry Roberts and Co., Crown Works, Bancroft Road, Mile End, London, E.

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Contracts entered into for the complete Construction of Roofs.

Full Particulars and Estimates Free on application.—AGENTS WANTED.

C. F. BEER, SONS, COLOGNE (Rhine).

In Manchester, a Vulcanite Cement Roofing is on the new Offices and Chemical Laboratory of Messrs. Peter Spence & Sons, Manchester Alum Works.

CHEMICALS, ETC.

REVISED AND REDUCED PRICE LIST OF CHEMICALS.—Reagents, Standard Solutions, Indicators, etc. POST FREE UPON APPLICATION.

Illustrated Catalogue of BACTERIOLOGICAL APPARATUS, etc. Post Free upon Application.

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Contractors to the Admiralty, Indian, Canadian, Tasmanian Governments, etc., etc.

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WIRE WEAVER, MACHINE MANUFACTURER, AND GENERAL MILL FURNISHER. Sole Maker of MILBURN'S Patent Conoidal Stone Grinding Mills. Especially suitable for certain materials, Wet or Dry.

Works and Warehouses:

Back Church Lane. Parcel Dept.: Basement of the Corn Exchange.

31, MARK LANE, LONDON.

CANNINGTON, SHAW & CO., LIMITED,

CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: West Campbell-st.

Manchester: Oldham Road,
London: Worship Street E.C.

WALKER BROS., ENGINEERS, PAGEFIELD IRONWORKS, WIGAN.

WALKER'S PATENT
AIR COMPRESSING ENGINES.
GAS COMPRESSING ENGINES.
70,000 I.H.P. ALREADY AT WORK.

WALKER'S PATENT
EXHAUST AND BLAST FANS.
RIVER POLLUTION

DYERS, CALICO PRINTERS, AND OTHERS
Can readily PURIFY THEIR WASTE WATERS by the simple and inexpensive
ALUMINO-FERRIC PROCESS.

Full Particulars on application to—
PETER SPENCE & SONS, Manchester Alum Works, MANCHESTER.

R. W. GREEFF & CO.,
3, EASTCHEAP, LONDON, E.C.
IMPORTERS OF

PUREST SULPHATE OF ALUMINA.
FLUORIDE OF CHROME (Patented). ANTIMONY SALTS.
CRYSTAL ALUM. HYPOSULPHITE OF SODA.
SUGAR OF LEAD, WHITE AND BROWN.
ZINC OXIDE, PURE ACETIC, TANNIC, & SALICYLIC
ACIDS, NITRATE & CHLORIDE OF BARIUM, &c.

SPECIALITIES—

SODA ASH 58%	Phosphoric Acid	Castor Oil
POTASHES	Acetates	Olive Oil
SALTCAKE	Oxalic Acid	Essent. Oils
BLEACH	Tartaric Acid	Glucose
LITHIA SALTS	Sulphuric Acid	Grape Sugar
BORAX	Carbolic Acid	Cane Syrup
MERCURIALS	Camphor	Treacle
SUL. COPPER	Stearine	Nitrate of Silver
PRUSSIANES	Glycerine	(Pure)
CYANIDES	OLEINE	
METALS		
MINERALS		
BRIMSTONE		
SULPHUR		

Amidol, Metol, Glycin,
Thiocarbamid and other
Photographicals,
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&c., &c.

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IMPORTERS—Commission Merchants—EXPORTERS.
HEADQUARTERS
FOR ALL
HEAVY OR FINE
CHEMICALS,
Pharmaceutical Products,
Photographic Developers,
Drysalters and Drugs,
Also OILS and PRODUCE.

Telegrams—
"FUERST, LONDON."
LONDON: 17, Philpot Lane, E.C. and 2 & 4, Stone Street, NEW YORK.

Telephone
No. 1050.

SAMPLES AND PRICES ON APPLICATION.

Tenders.

BOROUGH OF WIDNES.

THE Corporation Invite TENDERS
for the PURCHASE of from 400 to 500 Tons of
GAS TAR, from their Gas Works, for the Twelve Months
ending 30th September, 1895.

Forms of Tender and Conditions Contract may be
obtained from Mr. Isaac Carr, A.M.I.C.E., Gas Works,
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Tenders endorsed "Tar" to be delivered to the under-
signed, not later than the 3rd prox.

The highest or any Tender not necessarily accepted.

H. S. OPPENHEIM,
Town Clerk.

Town Hall, Widnes,
18, August, 1894.

**RADCLIFFE AND PILKINGTON GAS
COMPANY.**

TO TAR DISTILLERS.

THE Directors of this Company in-
vite Tenders for the purchase of 700 tons of the
Surplus Tar now in stock, and to be produced at their
works in Radcliffe, during the ensuing ten months.

Particulars may be obtained from the undersigned, to
whom endorsed Tenders must be delivered not later than
Thursday, the 6th of September.

JAMES BRADDOCK,

Manager and Secretary.

Gasworks, Radcliffe,
August 22nd., 1894.

TAR AND LIQUOR.

THE Eccleshill and Bolton Gas
Company invite Tenders for the SURPLUS TAR
and AMMONIACAL LIQUOR to be produced at their
Works, together or separately, for Twelve Months, from
1st September next.

Can be delivered in Contractors' Tanks at the Station,
(G.N.R.). Coal carbonized per annum, about 1,800 Tons.

Tenders, sealed and endorsed, must reach me not later
than Monday, 3rd September.

J. MELLOR,
Secretary.

Eccleshill, near Bradford,
25th August, 1894.

Miscellaneous.

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ADVERTISER (18), holding certifi-
cates, 1st Honours Practical, and 1st Advanced
Theoretical Inorganic Chemistry, and having knowledge
of Mathematics and Electricity, desires SITUATION
as Assistant CHEMIST.—Address, W. H., Chemical
Trade Journal Office, Manchester.

TO CHEMISTS & SMELTERS.—

A Gentleman, Graduate of Cambridge in Chemistry,
desires an ENGAGEMENT with prospect of Partner-
ship. Could find £1,000.—Apply by letter to Darbshire,
Tatham, and Worthington, Solicitors, 1, St. James's Square,
Manchester.

TO TAR DISTILLERS.—Wanted

SITUATION as MANAGER and CHEMIST;
10 years' practical experience in the Distillation of Tar and
the Separation of Products therefrom; experienced in the
erection of plant of the most modern construction; if re-
quired will undertake office work.—Address, R., Chemical
Trade Journal Office, Manchester.

ADVERTISER (25), having had 8

years' experience in the Distillation of Coal Tar,
and the Separation and Purification of Products, desires
an APPOINTMENT; for some time manager of a small
works; good references.—Apply, P., Chemical Trade
Journal Office, Manchester.

ADVERTISER desires AGENCIES

for Drugs, Pharmaceutical and Fine Chemicals,
Toilet Soaps, Perfumes, Photographic Materials, or any
Speciality, for Lancashire District.—Apply, "Agost,"
Chemical Trade Journal Office, Manchester.

TECHNICAL CHEMIST (Ph.D.),

holding diploma of Polytechnic School, wants
to change situation. Eleven years' practical experience
in large works in the manufacture of Acids, Alkali,
Ammonia, Alumina Products, Mordants for dye works,
etc.; also experience in the extraction and smelting of
copper.—Apply, B.C., Chemical Trade Journal Office,
Manchester.

CORRESPONDENCE SOLICITED.

Miscellaneous.—Cont.

WANTED, APPOINTMENT as CHEMIST in Works Laboratory. Seven years' with leading Analytical Chemist, and five years' in charge of Laboratory abroad.—Address, C. T., *Chemical Trade Journal* Office, Manchester.

WANTED, by a practical Man, a SITUATION as Manager or Foreman of Chemical, Manure, or Sulphuric Acid Works; good references from late employers.—Address, R. S., 57, North Cross Road, Dalwich, London, S.E.

BACK NUMBERS of this *Journal* WANTED of Issue 349. Full value given; must be in good condition.—Apply, E., *Chemical Trade Journal* Office, Manchester.

FOR SALE.—The *Journal of Chemical Industry* seven Years, 1881 to 1887, unbound, in good condition.—Offers to "Book," *Chemical Trade Journal* Office, Manchester.

WANTED, for Hire or Purchase, Two Railway TANK-WAGONS for Ammoniacal Liquor. Address, stating dimensions, and other full particulars and terms, to Box 423, G.P.O., Manchester.

FOR SALE.—Copper Condensers, Distills, etc., used in Wood Distilling.—Mitchel Bros, Manchester-road, Bradford, Yorks.

FOR SALE.—One Mumford and Moody Separator, 5 foot size, and Elevator, all complete; also 2 Gasometers with Poles, Chains and Weights; circumference 45 feet, depth 10 feet.—Apply, Odams Manure and Chemical Company, Ltd., Odams Wharf, Victoria Dock, London, E.

CYANIDES.—Wanted Particulars of Manufacture from Gas Liquor and Spent Oxide; communications treated confidential.—Mr. Brotherton, Commercial Buildings, Leeds.

ON SALE.—Beer Hogsheads, Oil Barrels, Rum Puncheons, Butts.—P. Hickey, St. Oswald Street Cooperage, Rochdale Road, Manchester.

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STONEWARE ACID PANS, COCKS, RECEIVERS, &c.
JAS. STIFF & SONS,
LAMBETH, LONDON, S.E.,
MANUFACTURE EVERY KIND OF VITRIFIED STONEWARE,
CHEMICAL APPARATUS,
INSULATORS, BATTERY JARS, POROUS CELLS, BOTTLES, JARS,
CONDENSING WORMS, PLUMBAGO & FIRE-CLAY CRUCIBLES.

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BRYAN CORCORAN,
MILLSTONE BUILDER,
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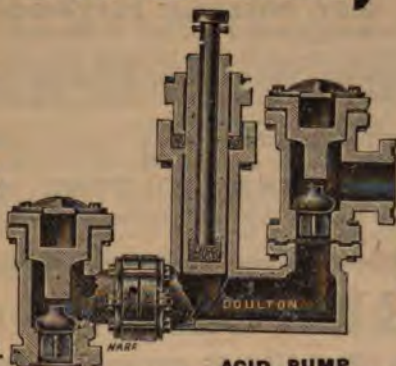
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Tenders.

MANCHESTER CORPORATION.

CLEANSING DEPARTMENT.

THE Cleansing Committee of the

Manchester Corporation are prepared to RECEIVE
TENDERS for the Supply of 500 Tons of Pure
GROUND BOILED BONES, to be delivered at their
Depôt (on the L. & Y. Railway), Holt Town, Man-
chester, between October 1st, 1894, and May 31st, 1895.

Specifications may be obtained from R. D. Callison,
Indoor Superintendent of the Cleansing Department,
Town Hall, Manchester.

Tenders must be sent in before 10 o'clock on Thursday
next, the 13th September.

The Committee do not bind themselves to accept the
lowest or any Tender.

WM. HENRY TALBOT,
Town Clerk.

September 5th, 1894.

COUNTY BOROUGH OF SALFORD.

GAS DEPARTMENT.

OXIDE OF IRON.

THE Gas Committee are prepared to

RECEIVE TENDERS for the Supply of 600 Tons
of OXIDE OF IRON, for purifying the Gas at their
Works.

Forms of Tender and further particulars may be obtained
on application to the Gas Engineer, Gas Offices, Bloom-
street, Salford.

Sealed Tenders, endorsed "Oxide of Iron," to be sent to
me not later than 5 p.m., on Thursday, September 20th,
1894, addressed to the Chairman of the Gas Committee,
Town Hall, Salford.

By order,
SAML. BROWN,
Town Clerk.

Town Hall, Salford,
4th September, 1894.

COUNTY BOROUGH OF SALFORD.

GAS DEPARTMENT.

SPENT OXIDE.

THE Gas Committee INVITE

TENDERS for the Purchase of about 730 Tons
SPENT OXIDE.

Further particulars and Forms of Tender may be
obtained from the Gas Engineer, Gas Offices, Bloom-
street, Salford.

Sealed Tenders, endorsed "Spent Oxide," to be sent to
me, not later than 5 p.m., on Thursday, September 20th,
1894, addressed to the Chairman of the Gas Committee,
Town Hall, Salford.

By order,
SAML. BROWN,
Town Clerk.

Town Hall, Salford,
4th September, 1894.

Miscellaneous.

On THURSDAY and FRIDAY, September 13th and
14th, 1894.

Re P. A. Mawdsley & Co. By Order of the Receiver, J.
Merrett Wade, Esq., at the PENTRE ALKALI
WORKS, FLINT.

Highly Important Sale of the Valuable ALKALI and
PAINT PLANT, MACHINERY and EFFECTS,
including about 150 tons of Lead, 250 tons of Wrought-
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and Boards; powerful Horizontal Air Compressor, by
"Neill & Son, St. Helens"; Root's Patent Blower,
Wrought-iron Oxidiser, tubing, valves, and tanks; four
large Wrought-iron Tanks, with pipes, shoots, and con-
nections; lengths of Wrought-iron Shafting and Fittings;
twelve Black and White Ash, Open Roasting, Saltcake,
and Muffled Furnaces; two sets of Vitriol Kilns, four
Double-lined Lancashire Boilers, from 28 to 35 ft. long by
7 ft. diameter; two Weston's Patent Hydro-Extractors,
two Broadbent's Hydro-Extractors, Lead Vitriol Tower,
12 ft. square; two Lead Vitriol Chambers, four Lead
Bleaching Powder Chambers, eight Lead Neutralising
Cisterns, eighty-six Cast-iron Crystal Cones, six Stone
Condensing Towers, seven Horizontal and Vertical
Engines and Fittings, fifty-six Wrought-iron Tanks,
Cisterns, Vats, Drainers, and Salting-down Pans, Cast-
iron Caustic Pots, Wrought and Cast-iron Plates, Stone
Crusher, Disintegrator, two Mortar Mills, eight large
Stills, eight Wrought-iron Burettes, three large Settling
Pans, Stone Grinding Mill, four sets of Paint Grinding
Rolls, Horizontal and Vertical Mixing and Grinding
Mills, Sieving Machines and Tanks, two Egg-ended
Receivers, two Vertical Exhaust Pumps and Air Com-
pressors, Donkey Pumps, Pug Mills, Wood and Iron
Shoots, Precipitating Tanks, Wood Cisterns, four Hor-
izontal Filter Presses, Lead-lined Wood Vats, about
1,750 yards of Permanent Way Rails, about 1,200 yards
of F.B. Rails, Steam Crane, Hand-power Crane, seven
Wrought-iron Tip Wagons, Lurries, Boggles, Wheel-

(SEE OVER.)

Miscellaneous.—Cont.

barrows, Platform Weighing Machines and Weights, Barrels, Casks, Scrap Lead, Iron and Zinc; Firewood, Bricks, Wood Erections and Sheds, Beams, 7,000 Fir Staves, Office and Laboratory Utensils and Fittings and Effects, which will be SOLD BY AUCTION, by

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TO CHEMISTS & SMELTERS.—

A Gentleman, Graduate of Cambridge in Chemistry, desires an ENGAGEMENT with prospect of Partnership. Could find £1,000.—Apply by letter to Darbshire, Tatham, and Worthington, Solicitors, 1, St. James's square, Manchester.

TO TAR DISTILLERS.—Wanted

SITUATION as MANAGER and CHEMIST; 10 years' practical experience in the Distillation of Tar and the Separation of Products therefrom; experienced in the erection of plant of the most modern construction; if required will undertake office work.—Address, R., *Chemical Trade Journal Office*, Manchester.

TECHNICAL CHEMIST (Ph.D.),

holding diploma of Polytechnic School, wants to change situation. Eleven years' practical experience in large works in the manufacture of Acids, Alkali, Ammonia, Alumina Products, Mordants for dye works, etc.; also experience in the extraction and smelting in copper.—Apply, B.C., *Chemical Trade Journal Office*, Manchester.

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CARBOYS.

SHERDLEY GLASSWORKS, ST. HELENS.

Liverpool: Exchange Chambers
Glasgow: 1991 Campbell-st.

Manchester: Oldham Road,
London: Worship Street E.C.

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SAMPLES AND PRICES ON APPLICATION.

Tenders.

TO TAR DISTILLERS.

THE Gas Committee of the Corporation of Blackpool are prepared to RECEIVE TENDERS for the Surplus TAR produced (about 1,500 tons) for next twelve months from September 30th. Endorsed Tenders to be sent to the Chairman by Saturday, 22nd day of September.
(Signed) JOHN CHEW,
Engineer.

Gas Office, Blackpool,
September 6th, 1894.

TENDERS FOR TAR.

THE Gas Committee of the Ilkeston Corporation INVITE TENDERS for the Surplus TAR produced at their Works for a period of Twelve Months from September 1st, 1894. Sealed Tenders, duly endorsed, to reach the Town Clerk (Wright Lippett, Esq.), Town Hall, Ilkeston, by noon, 20th September, 1894, the latest. The Committee do not bind themselves to accept the highest or any Tender.

Forms of Tender and other particulars to be obtained of
F. C. HUMPHREYS,
Engineer and Manager.

Gas Works, Ilkeston.

Miscellaneous.

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Treaty, as a going concern, the Valuable and Extensive WORKS and PREMISES of Messrs. D. Shaw and Co., Manufacturers of Wool Oil, Stearine, Tallow, Soap, Manure, &c., and known as the Clayton Oil Works, situate in Croft-street, Clayton, Manchester. The Buildings are very extensive, and exceedingly well arranged and adapted for the business. The Plant is modern, and of the best construction for economical working. The Premises comprise an area of 5,850 square yards, subject to annual rents of £36 16s. 6d. The Works have a long frontage to the canal, and raw materials, coals, and manufactured products can be brought to and forwarded at cheap rates. The Stock-in-Trade to be taken over at a valuation. Further particulars of the Property and Machinery may be had from EDWARD RUSHTON, SON, and KENYON, Auctioneers, Valuers, and Fire Loss Assessors, 13, Norfolk-street, Manchester; or from SUTTON, ELLIOTT, and TURNBULL, Solicitors, 13, Spring-gardens, Manchester.

TO CHEMISTS & SMELTERS.—

A Gentleman, Graduate of Cambridge in Chemistry, desires an ENGAGEMENT with prospect of Partnership. Could find £1,000.—Apply by letter to Darbishire, Tatham, and Worthington, Solicitors, 1, St. James's Square, Manchester.

TECHNICAL CHEMIST (Ph.D.),

holding diploma of Polytechnic School, wants to change situation. Eleven years' practical experience in large works in the manufacture of Acids, Alkali, Ammonia, Alumina Products, Mordants for dye works, etc.; also experience in the extraction and smelting in copper.—Apply, B.C., Chemical Trade Journal Office, Manchester.

ADVERTISER, 25, having had eight

years' experience in the Distillation of Coal Tar and the Separation and Purification of Products, desires an Appointment. For some time Manager of a small Works. Good references.—Apply, "P," Chemical Trade Journal Office, Manchester.

YOUNG MAN (23), with good train-

ing in Practical and Theoretical Chemistry, seeks SITUATION in Works: preferably Aniline Works. For references and particulars, address C. 992, Chemical Trade Journal Office, Manchester.

VITRIOL MAKER WANTED, to

Work Towers and Chambers. Full particulars to Brotherton and Co., Neshells Chemical Works, Birmingham.

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Miscellaneous.—Cont.

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IRON and STEEL (butt or lap welded), and FITTINGS for Gas, Water, Steam, Liquid Ammonia, and Hydraulic Work, galvanized white enamelled inside, or coated by Dr. Angus Smith's Composition. In stock to 8in. diameter.
COILS for heating, super-heating, distilling and refrigerating purposes, to 500 feet long without joints.

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WIRE WEAVER, MACHINE MANUFACTURER,
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Sole Maker of MILBURN'S
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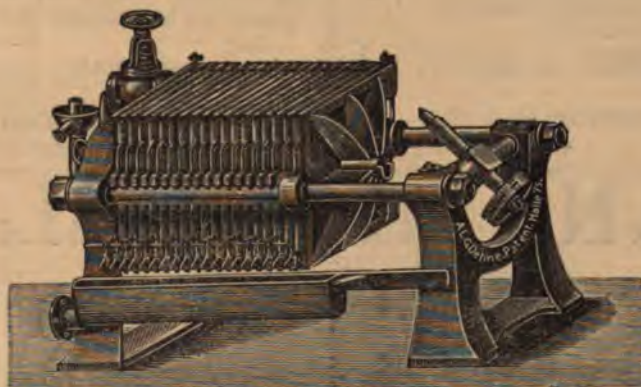
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Do. do. (crude).
Do. do. (solid).
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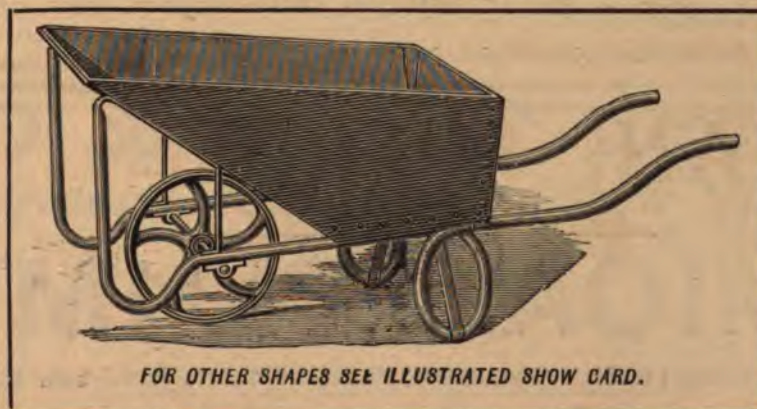
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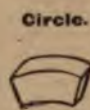
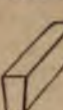
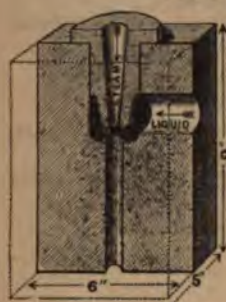


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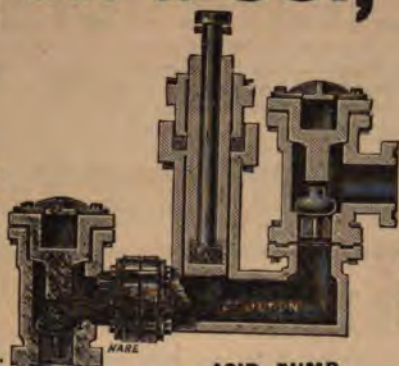
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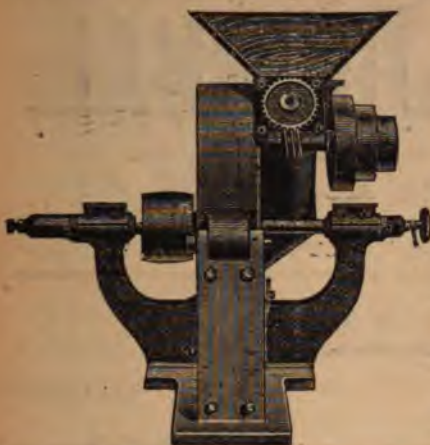
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